FARM CHEMICALS

NOVEMBER 1961
50 CENTS

The management magazine of the industry

"Jim" Lawler, Shell Chemical Company, discusses . .

The many sides of pesticide marketing

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Farm chemicals management series

How to direct

Special reports:

Flo-lizer: their business is spreading

The high cost of headlines

Tips on plant maintenance

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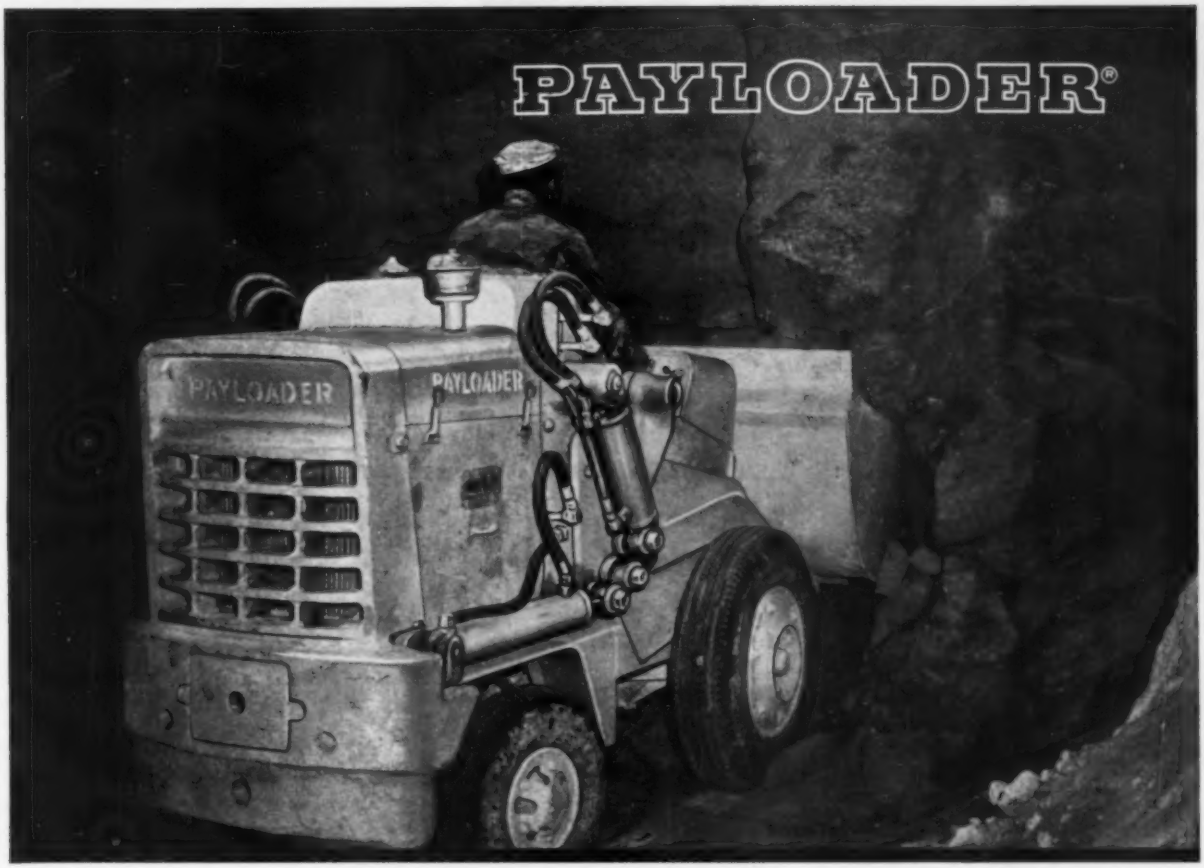

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BPA
MEMBER BUSINESS PUBLICATIONS AUDIT

The national business magazine for the fertilizer and pesticide industries, FARM CHEMICALS, serves primarily those persons responsible for management, marketing and production. It has a qualified circulation for selected executive and supervisory persons within specified segments of these industries, as well as in certain closely allied fields. Subscription rates to all others are: in the U.S., its possessions: $6.00; in other countries: $7.50. Current issue 50 cents. Back issues $1.00. (Current issues become back copies on the 5th of the month following publication.) Established in 1894 as *The American Fertilizer.*

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FARM CHEMICALS

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MARKETING

13 The Many Sides of Pesticide Marketing *Jim Lawler*

20 Part IV—The Importance of Directing *Robert D. Dahle*

SPECIAL REPORTS

14 Flo-lizer—Their Business is Spreading

16 The High Cost of Headlines

32 Fertilizer Consumption Report, 1959-60

PRODUCTION METHODS

18 Tips on Plant Maintenance

MERCHANDISING AIDS AND PROMOTION

22 Full Control Systems *F. E. Hartzler*

MATERIALS HANDLING AND CUSTOM APPLICATION

28 Fluid Film Solves Corrosion Problem

DEPARTMENTS

6 Letters

8 Washington Viewpoint

10 What's Doing in the Industry

30 The Slurry

30 Calendar

36 News of the Industry

38 People

38 Suppliers Briefs

41 Reader Service

42 New and Noteworthy

44 Editorial: The "Pesticide Problem"

THE COVER STORY

Jim Lawler, a soft-spoken, hard-hitting Missourian, attended the University of Missouri where he was awarded Bachelor and Master's degrees in Organic Chemistry. Jim began his marketing career with Shell Oil Company in St. Louis in 1937. After returning from three years of active duty in the Navy during World War II, he was transferred to Shell Chemical Company and held successive positions in the marketing of industrial chemicals. In 1953, he was named sales manager of the Agricultural Chemicals Division.

How Union-Camp's 5-Star Plan saved multiwall user up to $450 per carload of bags

This is a new kind of "Big-Inch" story.

A major mid-west packer* wasn't convinced his multiwall bagging operation was all it might be. Could Union-Camp's 5-Star Multiwall Plan help?

To get the answer, Union-Camp multiwall specialists visited the plant. They found that the automatically filled bags occasionally stuck in the sewing head. Also, that the sewing line tended to "belly" and form an arc pattern. The result was considerable loss in production and frequent breakage. Another problem—the bags didn't warehouse well.

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LETTERS

WHO'S CANADIAN AUTHORITY?

Quincy, Ill.

I would like to correspond with the Canadian Department of Forestry about the use of microbial insecticides for control of budworm. Do you have the name of the proper authority I could contact?

V. S. Bond
Technical Director
CALCIUM CARBONATE COMPANY

Write the Hon. Hugh John Flemming, Minister of Forestry, Canadian Department of Forestry, Ottawa, Canada. He will be able to give you the name of an expert in this field.—EDITOR.

REQUESTS

South Miami, Fla.

We would like to get more information on the surfactants mentioned in the August 1961 issue in the article "How Surfactants Affect Herbicides."

W. D. Horton
CHEM-PAK CO.

Osaka, Japan

I should be very grateful if you could let me have a reprint of the article entitled "How Surfactants Affect Herbicides," or if it is not available, how to get in touch with the authors, L. L. Jansen and W. C. Shaw.

Michihiko Ochiai
TAKEDA CHEMICAL INDUSTRIES, LTD.

Clarksdale, Miss.

Would it be possible to get 15 reprints of the article "How Surfactants Affect Herbicides" which appeared in FARM CHEMICALS August, 1961?

Sincerely,
Jack H. Oakman

We suggest that you write to either L. L. Jansen or W. C. Shaw, Crops Research Division, Agricultural Research Service, U. S. Department of Agriculture, Beltsville, Md. —EDITOR.

WANT ARTICLES

Chatham, Ill.

Will you please advice how I can get the first four articles in your series, "What the Manufacturer Can Do for the Dealer?"

W. R. McFedries
CALIFORNIA CHEMICAL CO.
ORTHO DIV.

We are sorry—the supply has been exhausted on this article.—EDITOR.

Clairton, Pa.

May I have a copy of an article from the June 1958 issue, by G. L. Terman and J. Silverburg, on the "Slow Release of Nutrients in Meta and Pyro Phosphates of Potassium," if you have the reprints?

Jack Wilson
Vice President
PENNSYLVANIA INDUSTRIAL CHEMICAL CORP.

Since reprints are not available, we suggest writing to J. E. Reynolds, Division of Chemical Development, TVA, Wilson Dam, Ala.—EDITOR.

HATES TO LEAVE

Hanover, Pa.

I am retiring soon after having been in the fertilizer field for many years, in fact since 1910. I shall miss all of the features of my work, but most of all calling on my friends and helping to plan their schedules of planting crops or caring for their crops or orchards. There is so much to be done to keep this wonderful country of ours producing healthful food, and I am sorry to have to cease to be a part of the team.

A. S. Sergent, President
UNION FERTILIZER CORP.

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Would you like more facts about PANASOL Solvents for agricultural pesticides? Send for Bulletin No. A-2. Your inquiry will receive immediate attention.

WASHINGTON VIEWPOINT

By GEORGE PETER

F C

- *Administration Eyes Bushelage Controls*
- *Will Farm Chemicals be Kefauver's Next Target?*

ARE MANDATORY BUSHELAGE controls over farm production coming next? We're hearing wide concern expressed over this prospect in many quarters. The question is arising again as it always has—how would this type of control affect optimum use of plant foods and, consequently, their sales?

First, before deciding how concerned you are, you ought to know just how this type of control works. It would not only control the amount of land used for a particular crop but would control how much a farmer could produce from the average acre. This would be about the tightest control ever put on farm production.

The idea is that farm production should come as close to factory output planning as possible. This is a key plank in the Administration's "production and supply management" farm policy for agriculture.

Basically, there is still the bedrock, longstanding concern by the farmer and industry over how much such a plan would cripple the efficiencies that can be gained by higher applications of plant food. How much would bushelage controls hamper the overall use of plant food? It's always been accepted that there is definitely the danger that this plan may cut into farm chemicals demand.

But we're also beginning to hear some pretty sharp arguments against this. They are coming from government career economists as well as official policy makers. It's generally accepted trade doctrine that less than 50% of crop output is produced at top efficiency. Officials argue that with higher price supports per unit of production and bushelage allotments, there would be the income and every other inducement to be as efficient as possible in order to be sure of getting the most out of allotments. Acreage would become less important than production.

Another way of looking at it is this: Take a farmer who had not been making full use of plant foods, had a low normal yield base for his acreage, and had not been getting the most out of his acreage. He could start increasing yield and get the same volume of crops on less land. The purpose of the bushelage allotment is to control production and government program costs, not hold back efficiency.

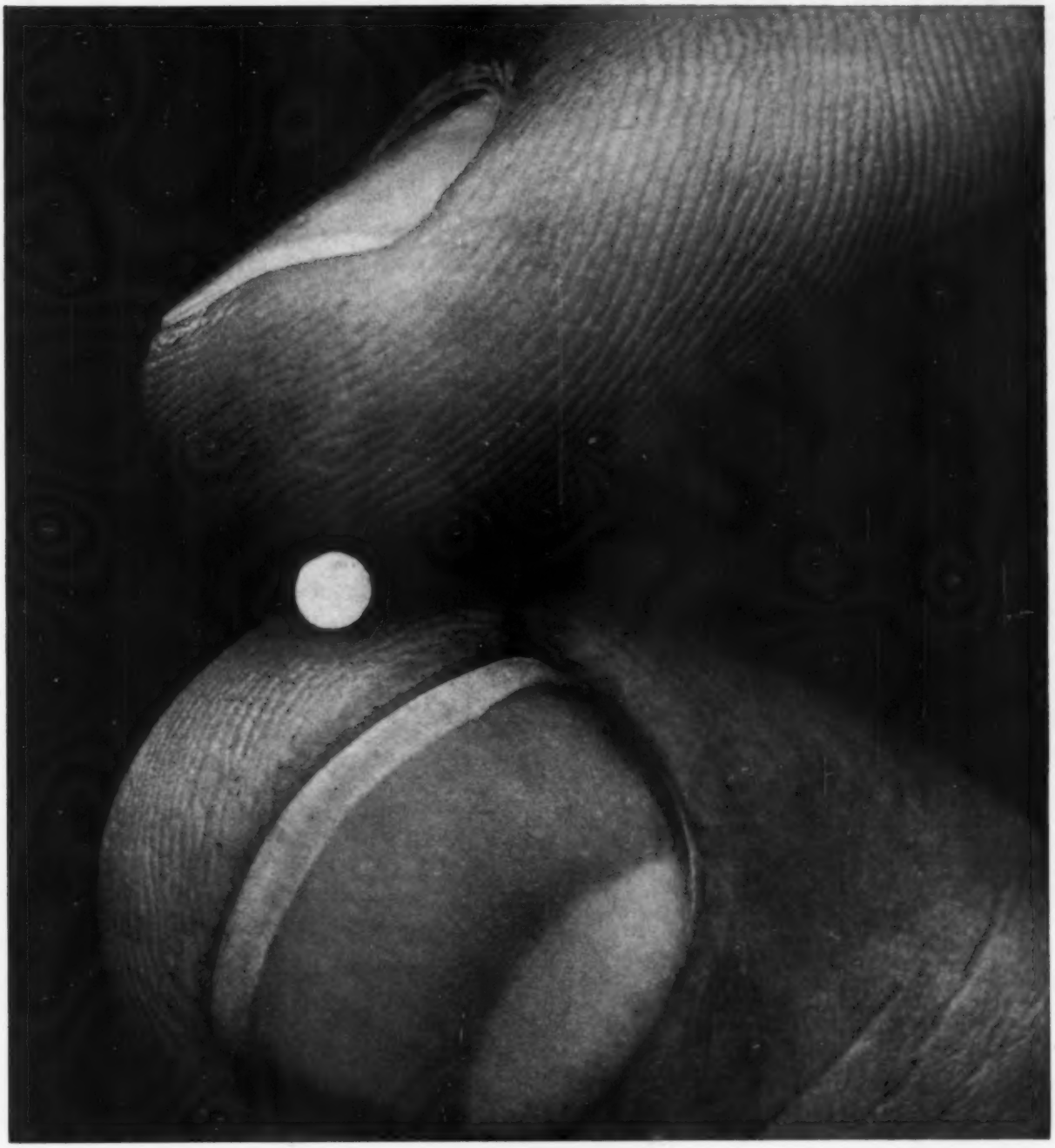
GREATEST PIECE OF ADVICE we have heard to pass along to farmers is this: Better start increasing your normal yield NOW. If bushelage controls are on the way, there is a chance they may also be based on recent yield history. Start before controls get here and raise your yield average.

WHAT ABOUT THE CONTROLS? The Administration is going to make every effort in this direction. Secretary of Agriculture Freeman tells us his grain cutback program is a success but that it is not controlling either production or costs fast enough. Despite Freeman's success with Congress, there is still an undercurrent of uncertainty about the future of farm programs. Attacks against program costs are still coming from influential quarters.

FARM CHEMICALS—KEFAUVER'S NEXT TARGET? Senator Kefauver's compulsory patent licensing bill affects only drugs right now but there are fears by responsible industry observers that farm chemicals might be next. So get set—just in case.

The Kefauver proposals would cut down to three years the right to a patent on new important drugs. Where would research and other costs go if such a limit were placed on the rights to a patent on new chemicals for use on the farm? It would hardly be worth it for farm research to get up in the morning. Industry sources tell us it would be impossible to get your research money back in three years.

SCORE ANOTHER VICTORY FOR FREEMAN. Despite the tremendous pressure from the cotton industry and some congressmen for an increase, cotton acreage will be cut from 18.5 to 18.1 million acres. It's a break for southern growers who want higher prices but a blow to the textile industry, already hard-pressed in the world market because domestic prices are higher than world prices.



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You can buy Belgian urea prills in America right now. In quantity. With fast delivery assured. As the first step in seeing how much better they can do the job for you—and how much bigger they can make your profits grow—send for a free sample and complete information. Simply write to the H. J. Baker office nearest you.

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Est. 1830

WHAT'S DOING IN THE INDUSTRY

F
C

There's a battle being waged between NAC and the nation's most influential newspaper, The New York Times. It all started with a Times editorial, "Controlling the Pesticides," in which they stated that "the industry has not acted responsibly in dealing with the hazards of chemical insecticides." L. S. Hitchner, executive secretary of NAC, defended the industry in a letter to the editor but the Times in an editor's note repeated their charge that the industry plays down potential injury to wildlife or possible water pollution from the use of pesticides. For the complete story of the industry's war against unfavorable publicity, see "The High Cost of Headlines" on page 18.

Everything's sunny in the Sunshine state's phosphate industry. New records in employment, total payrolls, and average earnings of its workers last year were set by the phosphate industry in central Florida's Polk and Hillsborough counties. While bucking the recession trend, the industry still managed to increase its number of employees to 5920, 500 more than the previous year. Total payrolls amounted to $30,594,560. Florida produces nearly three-fourths of the phosphate rock mined in the nation.

It's in the bag (Bemis, that is). Bemis Bro. Bag Co. will acquire the assets and business of Plastic Film Co., Inc., of Fairfield, Conn., as of January 2, 1962. Plastic Film will be operated as a wholly owned subsidiary of Bemis. It specializes in coating and laminating of a wide variety of materials, including paper, plastic, foils, and film.

Going up—that's the scoop on U. S. pesticide exports. Exports for the first six months of this year were valued at $60 million. Last year 52% of the 1960 total was shipped by the end of June. If this rate continues in 1961, exports should total $116 million. Pesticide exports have been jumping. In 1959, they totaled $86 million; in 1960, $106 million.

What a way to celebrate! Mississippi Chemical Corp. is celebrating their 10th anniversary in a big way. They're planning a $4.5 million expansion of their nitrogen plant at Yazoo City, Miss.

Pack your duds—it's meeting time! Rutgers Pesticide Dealers' Conference will be held November 16 at Collins Auditorium, Rutgers University campus, New Brunswick, N. J. Roadside improvements, including soil erosion, safety, and beautification, will be the topic of discussion at two meetings to be sponsored by Auburn University Extension Service. Improvements along the 900 miles of interstate highways to be completed in Alabama will be covered in meetings at Mobile, November 9-10 and Troy, November 16-17. School bells are ringing at University of Minnesota for the 11th annual Soils and Fertilizer Short Course to be held December 4 at Coffey Hall Auditorium, St. Paul campus. Hoosierites are busy planning the Indiana Fertilizer Conference, to be held December 12-13 at Memorial Center, Purdue University, Lafayette.

Will the industry's construction boom continue? Industry leaders are worried about the high cost of constructing new research laboratories and plant facilities. One major company just completed new laboratory facilities—at a cost of $55 per square foot. The same building could have been constructed in West Germany for one-tenth the cost.

"Don't blame us"—that's what the National Tank Truck Carriers, Inc. is saying these days about any shortage of anhydrous ammonia which has occurred this season because of a shortage of transportation equipment. The group claims there is sufficient anhydrous ammonia tank truck equipment available but most of it is designed to withstand a pressure of 250 pounds per square inch. The Interstate Commerce Commission requires a heavier tank designed to withstand 265 pounds psi. The ICC has proposed that 250-pound psi. tanks be authorized under certain conditions but the decision is being delayed primarily because of the objection of one of the principal chemical producing companies.

New production facilities will be added by Enjay Chemical Co., a division of Humble Oil & Refining Co., at Humble's Bayway, N. J., refinery. The new plant is expected to be completed and on stream by the middle of 1962. Principal product will be methyl isobutyl ketone (MIBK).

The importance of follow-through in NH_3 and Nitrogen Solutions purchases

by Ray Funk

About the Author. Follow-through is Ray Funk's specialty. He has been doing such work for 14 of the 23 years he has been engaged in sales work. For the last six years, Ray, as Product Distribution Coordinator, has devoted his time exclusively to customer service work on nitrogen products.

* * *

Follow-through on a sale is for the seller *not* the buyer. The ideal in this follow-through is to obviate the need for the buyer to do anything further after placing the order except to be ready to receive the shipment when it arrives. As a seller, we often go beyond the delivery responsibility by helping a customer in such matters as designing facilities for storage and handling. We may also assist him with educational programs on the safe handling of the Ammonia and Nitrogen Solutions.

But there is much more than this to sales follow-through on NH_3 and Nitrogen Solutions Sales. When we receive an order for Anhydrous Ammonia or Nitrogen Solutions, we must be ready to tell the customer at any time exactly where his shipment stands and when he should be receiving it. We must know what tank cars are available, when they will be loaded and when they will leave our siding. We must also know when the railroad who receives the car will be making it into a train. And of course, we must know the routing that will most expeditiously deliver the shipment to the customer.

This same attention to follow-through is true of truck shipments. We schedule accurately the arrival, loading and departure of truck transports from the plant; the surest route and the time of delivery. During peak Spring and Summer this is critical. To us it is important that the needs of our customers are attended to without interruption regardless of the method of delivery or seasonal peaks.

* * *

Would you like this kind of follow-through on your purchases of NH_3 and Nitrogen Solutions? Call American Oil Company.

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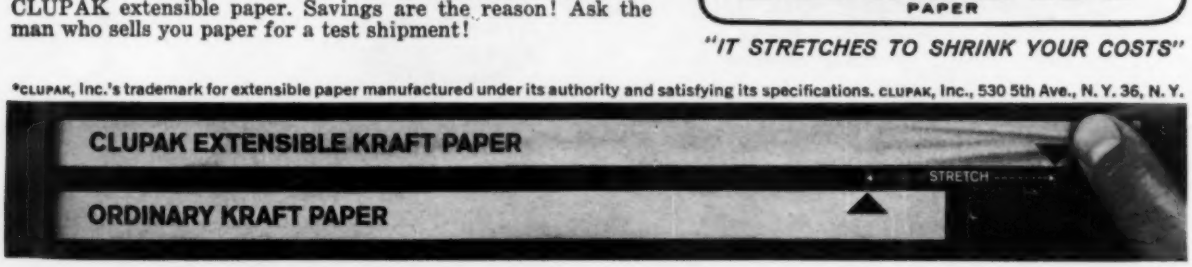


The Many Sides of
PESTICIDE MARKETING

Shell Chemical Company's sales manager tells how they attempt to give their customers complete information about all techniques which will enable them to do the best possible job of selling Shell's basic toxicants.

By JIM LAWLER*

THERE ARE MANY SIDES to the marketing of agricultural chemicals. Some are probably unfamiliar because this is a business that has grown so rapidly in a relatively few years. To go into detail on all aspects would take more space than is available here. However, we can look briefly at three methods of marketing of pesticides above the level of dealers and distributors. These methods relate to the independent formulator, the integrated manufacturer, and the producer and marketer of technical materials only.

THE INDEPENDENT FORMULATOR

No explanation is really necessary concerning the independent formulator since he is a "primary reader" of FARM CHEMICALS. The independent formulator's success is due to a great extent to their skill in formulating and selling the types of pesticide mixtures required in a particular area.

Some local formulators have expanded to perform custom applications when this service is economically advantageous to both the formulator and the grower. Local formulators require a relatively small amount of capital to get in business, and in one way this is an advantage. On the other hand, it means they are always threatened by potential newcomers.

THE INTEGRATED MANUFACTURER

Integrated manufacturers produce basic toxicants which are formulated in their own plants and sold to dealers, and in some cases, to large growers. Several of the integrated manufacturers also purchase basic toxicants to have a complete line. This helps them build a strong dealer organization and keeps their brand names in front of the farmer.

Advantages of an integrated operation depend to a large extent on the company's raw material position, plant locations, brand name acceptance, etc. Since integrated companies control a product from its basic manufacture down to the dealer or consumer level, they do have a complete picture of the entire business.

MANUFACTURER OF BASIC TOXICANTS

The third method of pesticide marketing is used by the manufacturer who produces only the basic chemicals for sale as technical materials to independent formulators and integrated companies for further processing. The manufacturers of basic toxicants require large capital expenditures for plants and equipment. They must meet heavy research costs and large development expenses for early field trials and the extensive toxicity studies needed to prepare petitions for tolerances. Advantages of this type of operation depend primarily on the company's patent position, source of raw materials, and plant locations.

The success of any one of the three methods depends to a great extent on the service that is rendered to customers. Each method of marketing require a somewhat different approach to customer service. The term "customer service" has been used by many companies in speeches and advertising for years past. I think it is still a prime mover in marketing.

The trick is first, to really give customer service, and secondly, to tailor this service to the customer's needs and the technical developments of today's business. Some persons may think that handling an order promptly constitutes customer service. Well, it certainly is important to ship on time, but this is not really a service to your customer. It is a part of doing business. I think that customer service involves much more. This is especially so in the agricultural chemicals field.

Since Shell manufactures only basic toxicants and sells to the two groups mentioned earlier; namely, the independent formulators and integrated manufacturers, we must offer our customers the type of service that can best help them in conducting their business. Not to give the wrong impression on my earlier remark about handling orders, I wish to point out that we maintain warehouses throughout the United States and give 24-hour delivery service on all our products. However, we try to build our customer service on something more than this.

FORMULATORS GET ALL INFORMATION

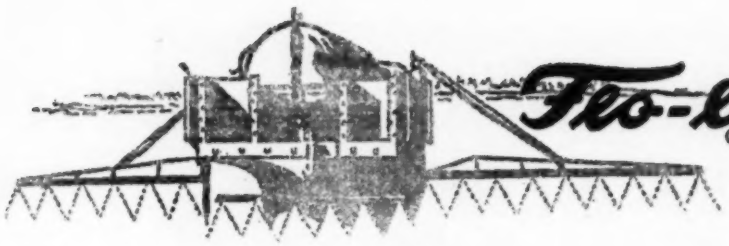
We feel that customers who formulate our products are entitled to complete information about all the techniques which will enable them to do the most efficient job for quality formulations. To provide this service, we maintain a large formulation laboratory at Union, N. J. Its staff works constantly on new formulation developments and tests new carriers, stabilizers, and emulsifiers with a view toward finding better ways of formulating our products alone and in combination with other toxicants.

We regard our advertising efforts and expenditures also as being part of our customer service. Although we do not sell to the ultimate users of pesticides, we spend a major part of our advertising budget in media directed to them. We believe in advertising to our customer's customer. Every ad that stimulates the grower to buy provides a sale for our direct customer, the formulator, and his customer, the dealer.

Our sales development efforts also result in broadening markets. A large part of this activity consists to a great extent of gathering information to support new labels. But it also consists of education programs for growers and dealers on the economic advantages of chemical farming. This stimulates the use of more chemicals, helping to create a bigger market for the formulator.

(Continued on page 30)

**Jim Lawler is Sales Manager, Shell Chemical Company.*



Flo-lizer® ---their

FROM one midwestern plant making liquid fertilizer mixtures in competition with solids in 1954, to about 350 in 1961—the continuing story of the rapid growth of liquids amazes even those connected with this expanding industry.

One of the energetic pioneers in this field is Don Humphrey, who, with his partner, Norman Godden, supervised and helped design and build one of the very first liquid fertilizer mixing plants in the country.

They named it "Flo-lizer," and have been serving the area around Kingston, Ohio ever since. They have also set up a dozen service centers in other communities in the southcentral and southeastern part of the state.

Although they also handle Morea liquid feed supplements, their business is quite seasonal. Thus, in order to expand sales of the liquids, they investigated the landscaping services connected with the building of new highways in Ohio. Landscape contractors usually subcontract the fertilizing job for the prime contractors.

The major work on highways, moving vast volumes of earth, must necessarily wait until late spring because of the weather. This coincides with the end of the spring farm fertilizing jobs, so Humphrey decided to go after some of this business.

By adapting the equipment to the job, and by being able to furnish the liquid fertilizer at a reasonable cost per ton in place, Flo-lizer has been able to get many of the roadside jobs in the area around Kingston.

Don Humphrey, right, and Norm Godden started Flo-lizer in 1955.

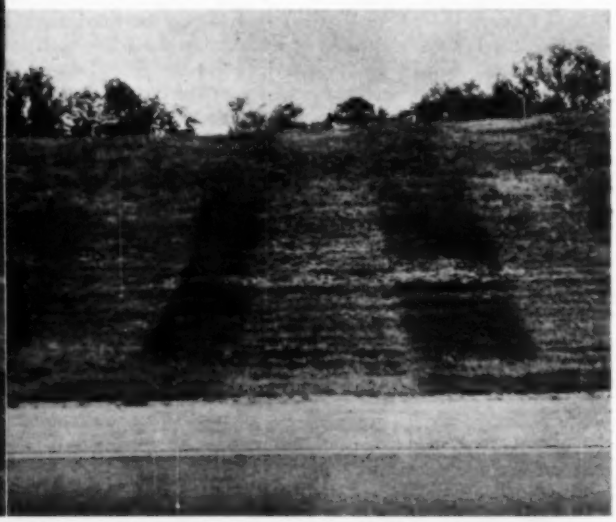
The average size daily project runs 10 to 11 tons—a matter of a 15-minute operation. The men then go on to another job in this profitable program.

About 7% of his total yearly sales is now represented by roadside fertilizing. One or two men can easily handle the jobs, which are accomplished with a minimum of time and effort.

"Naturally, with the contractor purchasing sizable tonnage each season, the fertilizer was very competitively priced for these jobs," Humphrey told FARM CHEMICALS. "It was not always possible to get the necessary price per ton when we first started working with these contractors. They had been purchasing their fertilizer in bags, delivering it to the job site, and applying it with their own crews. Consequently, the price per ton of material placed on the site was a very low figure. It was the cost per ton in place, approved by the highway department inspectors, that enabled us to provide a service that was interesting to the subcontractors."

Specifications are set up by the state. At present, 12-12-12 is the one specified

The ideal project utilizes 15 tons of fertilizer, takes 10-15 minutes.



Close-up of test strips, showing effects of different fertilization rates.

business is spreading

by Ohio officials, although other analyses are sometimes used. It is applied at the rate of 900 pounds per acre.

Purdue University turf department recommended a 4-1-2 ratio which, along with 1-1-1 and nitrogen only, has been tested extensively, with satisfactory results.

The completely soluble fertilizers produce rapid growth of a good stand of grass which prevents washes into drainage channels and culverts.

Flo-lizer's application equipment consists of a tank truck and trailer with tank which was designed especially for this roadside work. Tanks are stainless steel, made by Standard Steel Co., Indianapolis, Ind. Each truck and trailer unit has a 2000-gallon capacity.

"We are able to apply liquid fertilizers very evenly over the entire area along the roadside, including cuts and banks, rapidly and efficiently and at a reasonable cost," Humphrey stated. "We have a fleet of 26 trucks, and the one trailer unit."

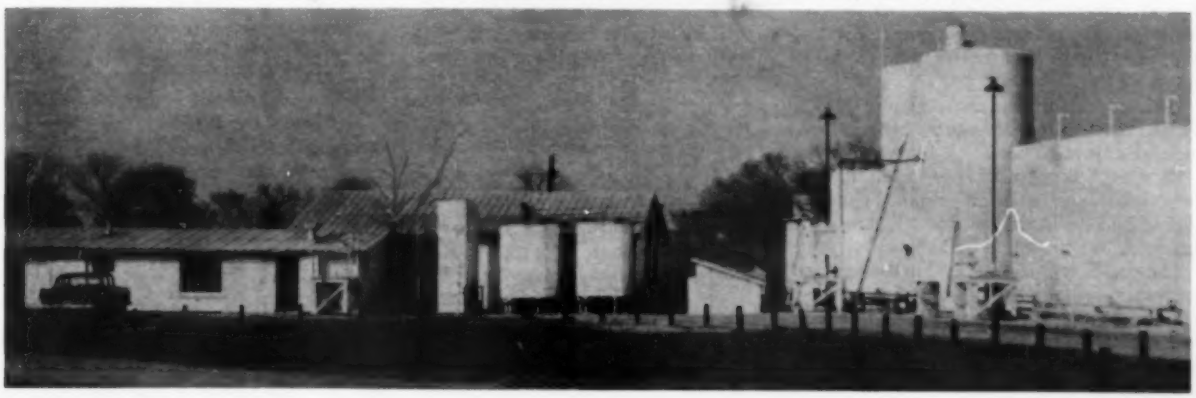
Many state highway officials have commented that the fertilizer was more accurately and evenly applied than they had ever seen on highway projects.

One of the most desired results of this fertilization of roadsides is fast growth to provide a solid turf more rapidly. Rapid response to the completely soluble liquid fertilizer produced a lush green growth that prompted the state highway department to propose some experimental fertilization on existing highways as a maintenance program. ☆

Two 1000-gallon capacity tanks are used for a job. One or two men can easily handle these.

Test strips showing different fertilizer rates, demonstrating effectiveness of liquid fertilizer.

Here is Flo-lizer headquarters. The Kingston, Ohio company has 12 other centers.



THE HIGH COST OF Headlines

Farm Chemicals continues its series on
"How We Can Improve the Pesticide Industry's Image"

ONLY MEANT TO KILL INSECTS, BUT WILL THEY GET YOU, TOO?

THIS WAS A HEADLINE in the *Financial Post*, Toronto, Canada. And here was the lead:

"Will pesticides get us before the H-bomb?"

After this sensational start, the article immediately began to *tone down*—that is, it actually began to *report objectively* what a panel of international scientists *really* had to say about insecticidal residues!

As it turned out, the actual contents of the story gave an *entirely different* meaning from that of the headline and lead.

According to the paper, here is what the scientists discussed:

"You must realize," said Dr. Henry Hurtig, director of research, Canadian Department of Agriculture, "the relative size of the problem.

"We are investigating residues from insecticides in terms of parts per million.

"Relatively speaking, it's like having a tank car full of gin and adding an eye dropper full of vermouth."

The paper went on:

"The scientists from Canada, the U.S., the U.K., and Belgium agreed that if farms use the insecticides currently on the market according to instructions there will be no danger to public health."

On another subject, the question was asked "Have insecticides upset the balance of nature?"

"Nature," replied the scientists, "has been unbalanced ever since man began hoeing the ground. But some balance in world pest control is being sought."

The paper reported that "for the past five years, Canada has had positive controls on insecticides. Standards of tolerance have been established."

In summarizing the subject, the newspaper finally concluded:

"The scientists agreed that the situation was hopeful. *The greatest danger they felt, was the emotional discussion of the dangers of food contamination.*"

To which, FARM CHEMICALS feels obliged to ask:

"Who's being emotional?" Surely, the answer has to be:

No one but the *Financial Post!*

USDA ANSWERS NEWSWEEK

Justus C. Ward, head of the United States Department of Agriculture's pesticide branch, reported recently that "proof is lacking" that two widely used insecticides cause mental illness. The United Press International news item quoting Ward referred to the recent issue of *Newsweek* which reported two Australian researchers as saying "psychiatric symptoms result from prolonged exposure to insecticides derived from deadly nerve gases. The insecticides included two preparations called parathion and malathion." (See "Editorial," October FC).

In August, 1961 the *NAC News and Pesticide Review* featured an article adapted from an address by Dr. Robert H. White-Stevens, assistant director of research, Agricultural Division, American Cyanamid Company, titled "Food—Facts, Fallacies and the Future." Following the presentation of the paper at the Newspaper Food Editors Conference held in New York City in October, 1960, a substantial amount of mail was received by Dr. White-Stevens commenting on his remarks, according to NAC's *Public Relations Bulletin.*

In reply to one correspondent who took issue with a number of his statements, Dr. White-Stevens prepared and mailed a factual answer, which FARM CHEMICALS considers to be a real classic! It was distributed by the NAC in its August 22, 1961 *Bulletin.*

His reply would make excellent "ammunition" for anyone faced with presenting the industry's views on the "pesticide problem."

Here was Dr. White-Stevens' honest, straight-forward reply to the correspondent's statement concerning "the increasing number of outstanding scientists and physicians who are warning us of possible ill effects of residues, sprays, and additives."

"This is an impressive statement, but is it really true, can you document it with authentic evidence and data? I very much doubt it. A number of us,

(Continued on page 28)

EDITOR'S NOTE

The NAC has been kept busy of late answering the critics in the press, national magazines and individual crackpots. FARM CHEMICALS is running this series of articles entitled "How We Can Improve the Pesticide Industry's Image" at a time when the industry seems to be receiving more than the "normal" amount of adverse criticism.

We note that the NAC has distributed some outstanding material concerning "Presenting Pesticides to Your Public," as part of its "grass roots public relations" program to "help refute some of the adverse and sensational publicity that continues to appear in the public press, based, quite often, on misconstrued and garbled information."

NAC bulletins available are:

P. R. 156 — Editorial in *Saturday Evening Post.*

P. R. 151—Editorial in *The New York Times.*

P. R. 153—Food—Facts, Fallacies and the Future.

P. R. 146—Increasing Farm Production through Chemicals.

P. R. 144—*Journal of Commerce* story.

P. R. 140—Industry Views on Pesticide Research, by J. S. Skaptason (Chemagro).

Other publications: *Open Door to Plenty* and *NAC Pesticides and Public Policy.*

Tips On Plant Maintenance

Do you know what lubricant to use on external frictional surfaces? International Minerals and Chemical Corporation answers that and other questions on plant maintenance in the first issue of its *Technical Service Newsletter.*

IMC has launched a new phase of its "Full Orbit" customer service program with the publication of this quarterly newsletter. Purpose of the newsletter is to provide information about operating techniques, production methods, maintenance, etc., to their fertilizer manufacturers.

Here are just a few of the tips on plant maintenance offered by IMC:

A plow type shovel mounted on front of payloader does good job of cleaning floors.

• To prevent overloading of motors on elevators, mixers, screw conveyors, pug mills, dryers, etc., place an ammeter on each piece of equipment with the dial conveniently located at the main control panel, to quickly determine when the equipment is overloaded. The dial may be red lined for a safe operating range so that even the inexperienced operator can tell when equipment is overloaded or not performing correctly.

• If you are using a pug mill type acidulation unit it is essential to periodically clean and inspect the pug mill. Excessive build-up on walls or on paddles, or missing paddles will result in lowering of retention time and subsequent loss of conversion to APA. As much as one-half unit of APA can be lost if retention time is lowered 10 to 15%.

• Pressure gauges located on entry pipe lines to ammoniator spargers or scrubber spray nozzle systems provide a convenient check on whether openings are plugged or enlarged.

• Lubricate mixers or similar rotary equipment immediately after shutdown while equipment is still warm. For external frictional surfaces such as tires, ring gears, pinion gears, etc., molybdenum disulfide provides an excellent dressing and lubricant.

• Good housekeeping is essential to good operation. For cleaning floors during down time or off season, use a plow type shovel mounted on a payloader.

• Never tie the exhaust ducts from the cooler and dryer cyclones into one common discharge stack. The hot saturated air from the dryer will hit the cold air from the cooler and cause excessive condensation. This condensation will generally run back into the cyclones causing corrosion, build-up, and can drip a stream of water from the cyclones causing many other mechanical and housekeeping problems.

• Schedule frequent inspections of all material handling equipment to prevent spillage of materials. Material spillage represents dollars lost in both time and material. In addition, if the material spills off a conveyor belt onto the head pulley and deteriorates the bearings, needless down time and replacement expenses are involved.

• Use of fiberglas switchboxes has proven a definite asset to fertilizer plants due to their resistance to corrosion and ability for tight closure. Their use should be checked out wth the local electrical code first. ☆

Notice material that has spilled off conveyor belt. Spills onto head pulley may deteriorate bearings, causing needless down time and expensive repairs, in addition to materials lost.

PROBLEM: How to specify moisture protection for your product without being an expert on packaging papers or coatings

SOLUTION: With International Paper's new "Levels of Protection" you buy precisely the packaging protection you need and no more

Now, with its "Levels of Protection," International Paper cuts through the confusion resulting from the many different types of moisture-barrier papers available today.

The "Levels of Protection" system provides the first effective yardstick for comparing one moisture-barrier paper with another. This means you don't have to be an expert on papers, coatings and weights to get the best packaging for your money.

This new rating system evaluates all our moisture-barrier papers—regardless of type or weight of coating—against a scientifically graduated scale of *levels of protection*. Knowing what product you package, we can quickly recommend the most effective level of protection for that product.

But this rating system has another dimension. Since we can supply a number of different types of moisture-barriers for any given level of protection, we can offer you the *one* barrier that *most economically* furnishes the level of protection you require for your product.

This new system is another example of the complete packaging service offered you by International Paper. Service which includes a complete range of paper packaging and paper packaging materials, skilled packaging engineers, printing and design service.

For full details, call any of our sales offices or write us direct.

INTERNATIONAL PAPER
NEW YORK 17, N. Y.

Manufacturers of papers for magazines, books, newspapers • papers for home and office use • converting papers • papers and paperboards for packaging • labels • folding cartons • milk containers • shipping containers • multiwall bags • grocery and specialty bags and sacks • pulps for industry • lumber, plywood and other building materials

DIRECTING

"Jake" Learns to Delegate

"Jake" Smith, farm chemicals manufacturer, learns an organizational plan isn't effective without a director.

LIFE certainly wasn't treating Jake Smith very well. His desk was a mess of unanswered letters, unread trade publications, half-finished projects. He

couldn't even find a pencil without shuffling through the papers scattered across the desk.

And that telephone! If it rang just once more, he was going to pull that cord right out of the wall!

If only those people *supposedly* working for him would make a little effort to do some of this work themselves, without turning to *him* to finish the job, he thought.

Poor Jake—if he hadn't been in such a quandary he would have heard that voice inside him saying, "Whoa there, are you certain it's *their* fault?"

Being a manager is "great stuff" as long as you follow the rules. Jake had "fouled" by not delegating work and directing his staff and he was being "penalized" by having to do the whole job himself.

Jake could solve his dilemma if he would follow these steps:

- Determine specifically what jobs must be done and then decide what tools are necessary to do these jobs.
- Prepare clear and effective orders, instructions, and information so that each person will know precisely what his work entails.
- Provide for proper communications and relations with and between all the organization units operating under his control.

A COMMON FAILURE

Jake Smith's tendency to "keep a finger in every pie" is a common failure among managers. This failure arises because the manager knows that ultimately he will be held responsible for the results. Most managers have a fine sense of responsibility. Fear of delegation is a result of attempting to safeguard this responsibility.

Jake's keen sense of responsibility is commendable—but he forgets that he must also be held responsible for the effects upon himself from trying to do everybody's work. A manager in Jake's state is not much help to anyone—even himself.

Delegation isn't a contagious disease to be avoided at all cost; it is simply giving someone else the authority to do a given task and making him responsible for its accomplishment. Jake's problem is to decide what to delegate.

Jake made a list of rules to follow in determining what to delegate. He decided to:

- Delegate anything anyone else could do as well as he could. *He wanted to use the specialists to do the jobs which he had hired them to do.*
- Delegate things which he might do poorly because of a lack of time.
- Delegate work when a subordinate could do the job well enough for the cost or time involved. *He found it often took less time to coach a subordinate than to do the job himself.*

If costs and time permitted and if the job did not involve too much risk, he would delegate the job as a means of developing his subordinates.

Of course, Jake was careful not to delegate anything of a confidential nature that a subordinate could not be expected to handle.

One of the rules was so important that Jake had a little reminder printed to place on his desk:

"If you find you are spending too much time on operations and not enough time on managing, delegate the work or develop someone to whom this work can be delegated."

JOB DESCRIPTION VITAL

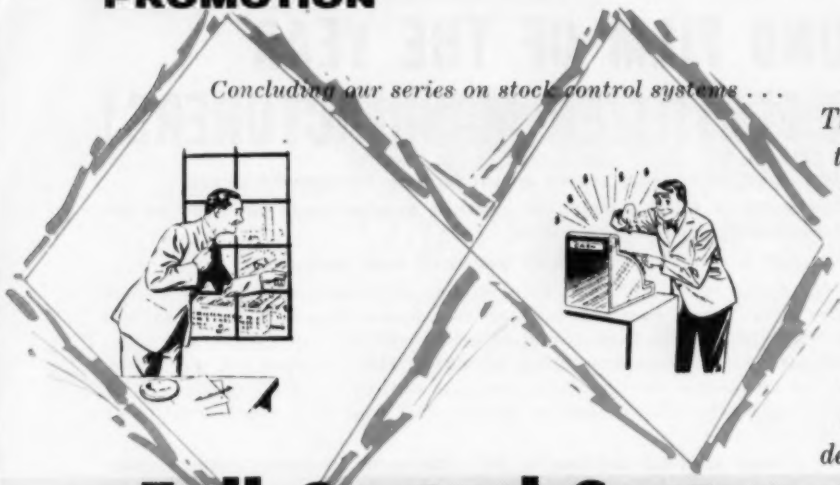
Some of Jake's dilemma could have been avoided if he had prepared written job descriptions defining both *responsibility* and *authority*. The limits of his responsibility and authority as manager should have been spelled out specifically in his organization chart and in his job descriptions.

Jake's desk is no longer cluttered with papers, half-finished projects, and unread trade publications. Work is progressing smoothly without "his finger being in every pie."

If he could just co-ordinate and control his staff and its functions, he thought, managing might be a "pretty nice job." Look for his story next month. ☆

Fourth in Series

A wealth of material has gone into a manual which is the basis of this new series on management. The manual grew from materials presented at test demonstration schools conducted by the North Carolina State College marketing staff. This marketing group has done an outstanding job in providing education and training in the skills and practice of management. FARM CHEMICALS *is proud and happy to be able to publish this series. If you should desire information on how these schools are set up for industry, please contact Mr. Robert D. Dahle, Extension Marketing Specialist, North Carolina State College, Raleigh.* —EDITOR.



Concluding our series on stock control systems . . .

This is the final article in our series, "What the Manufacturer Can Do For the Dealer." The author has explained the various types of stock control systems applicable to a farm chemicals manufacturing firm. For an explanation of other systems refer to articles appearing in February through August issues. Our next series, appealing to manufacturers and suppliers, as well as dealers, will be a discussion of accounting.

Full Control Systems

By F. E. HARTZLER

HERETOFORE, we have talked about partial control systems — systems that short cut the work found in full control. However, most of them have usually been abandoned because they simply do not cover the information that is covered by a full stock control system.

A full control system is composed of two sheets—a data sheet and a count sheet. The data sheet has places for information about the merchandise so that it can be clearly identified: source, freight classification, page number, style, written description of the article, size or color, cost (which you may not want to use), and selling price.

The count sheet has the number or initials of the clerk doing the counting, the date of the count, and spaces for control. This count sheet should be duplicated on both sides, thus making it a flip sheet on which it is quite possible to keep a full year's record. Furthermore, by using the flip sheet one listing on the data sheet will be enough. However, there is one caution—never fill the data sheet completely full; leave it about one-third empty so that new items can be added.

The terms which are found on Illustration II may need some explanation.

O.H. means *On Hand* at the time of count.

O.O. means *On Order*. This information should be entered at the time an order is sent in.

R. means *Received*. This figure should be entered from the invoices when merchandise is received.

S. means *Sold*. This figure is found by subtracting the O.H. from the number available for sale.

To make the reading clearer, I personally prefer to scratch out on the completed data sheet the O.O. column

Illustrations I and II represent samples of partial data and count sheets.

I

RESOURCE..... CLASS.....NO. .....

Style No.	Description	Size or Color	Cost	Unit	Retail	Min. Pkg. Quan.	
							1
							2
							3
							4
							5

II

No.												
Date												
No.	O.H.	O.O.	REC.	S.	O.H.	O.O.	REC.	S.	O.H.	O.O.	REC.	S.
1.	√				√				√			
2.	√				√				√			
3.	√				√				√			
4.	√				√				√			
5.	√				√				√			

Potent pesticides flow more freely with Celite Fillers

To assure powerful insecticides that will disperse uniformly, more and more formulators are using Celite® diatomite. Celite is the inert mineral filler with unique properties that provide many vital benefits to the insecticide industry.

With surface areas as high as 25 sq. meters/gram, high absorptive capacity and varied particle size and shape, Celite prevents the caking of any toxicant.

This versatile filler can also absorb up to twice its own weight of liquid, thereby making possible higher toxicant concentrations in wettable powder and dust formulations. Further, Celite gives you less weight, since only 9 lbs. bulk to a cubic foot.

Get the full Celite story. Write Johns-Manville, Box 325, New York 16, New York. In Canada: Port Credit, Ontario. Cable address: Johnmanvil.

JOHNS-MANVILLE JM PRODUCTS

when the merchandise is received. Let's look at the O.H. columns now. On line one we have XYZ Spray in pints. We had 12 on hand on June 1, ordered and received 12 more, making a total of 24 pints available for sale. Since we had 18 left, we must have sold six. In the quarts entered on line two we had 12, received 12, and have 6 left. Therefore, we sold 18.

A completed data sheet will look like this:

Date		6/1/61				7/1/61
No.		O.H.	O.O.	R.	S.	O.H.
1. XYZ Spray	pt.	12	12	12	6	18
2. XYZ Spray	qt.	12	12	12	18	6
3. XYZ Spray	gal.	12	12	12	0	24

The sales are entered in red so that they can be easily read. Remember the sales column is always filled by subtracting the *On Hand* columns from the total of the *On Hand* and *Received* columns of the preceeding month.

At the end of the first year, you should be able to set your stock for each month of the coming year and not be off more than 5%. You are doing this work not for this year but for the years ahead.

These sheets for full control can be kept in a loose-leaf notebook. You may want to use one binder for each department or division. Keep them in the office, but make each department head responsible for his own department.

COLOR CONTROL

Another type of full control which is currently being tried with some success, and which looks as though it has a great future, is color control. In many respects this requires less work than any other system.

Color control is used to locate old stock and by itself will do a good job of this. It operates like this. For each two-months period a different colored marking pencil or ticket is used. The colors might run like this:

January and February	Blue
March and April	Yellow
May and June	Green
July and August	Orange
September and October	Violet
November and December	Red

The merchandise coming in during each period is marked with its identifying colored pencil or ticket.

If a ticket is used, it is quite possible to add many other items of information such as the number of this item received. If this were done the following is quite possible: Checking a rack of garden tools in November, you find shovels marked with blue tags on which is written the number 24. Counting 12 left, you know that last year you sold 12. Since you had them in plenty of time—January-February—you will not need to order any more for the coming year because your sales for the year were 12, the number on hand.

	Sales											
Item	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
XYZ Pts.				6	5	5	4	2	0	0	0	0
XYZ Qts.				12	24	24	18	16	2	0	0	0
XYZ Gal.				6	8	12	3	1	0	0	0	0

This does not, however, do what full control will do. It does not tell you the inventory you want to have each month, but it will warn you about dead stock.

The end result of a full control pattern is shown in table immediately above.

Using the formula, two months on hand and order the third month, for the quarts we would have something like table at right.

On this stock, with an average investment of 16 quarts per month, you have sold 192 quarts, thus you have a stock turn of 11 which will make money easily.

PUTTING IN A CONTROL SYSTEM

There are a few words of warning that are in order at this time. When you start to control merchandise, try to get rid of the basement and storeroom stocks. The check marks in the *On Hand* columns shown in Illustration II are for basement and shelf stock, but the sooner you can get rid of the backroom stock in small items the better off you will be.

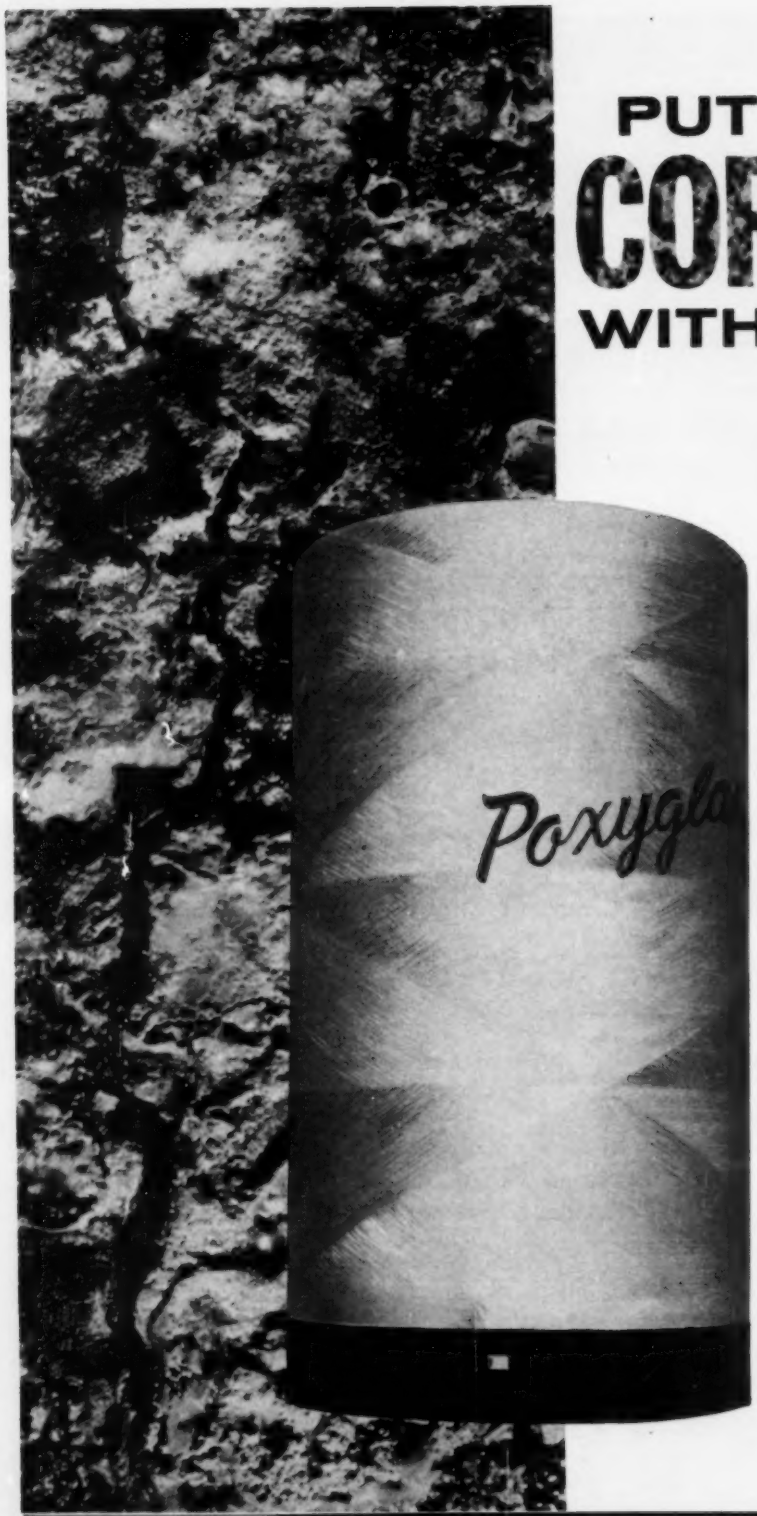
Once you start control you are more or less bound to maintain a standard shelf order. So you should pay attention to this shelf order. This means that you merchandise your shelves with some care. You will find yourself facing such problems as these: Do I merchandise by brand names, putting all products of one brand together, or do I merchandise by items, putting all fly sprays together? What are the best items for the feature bins?

Since the corner spaces are usually the best ones on a table or display rack, put your best items there.

To begin stock control one should set up a schedule for installing a control. One department at a time is the best plan to follow. There are a great number of problems involved that cannot be foreseen. These will show up as you begin to install a control system.

If you take one department at a time, you will be able to move steadily toward completion, and by the time you get to the third department, you will have mastered the problems and can move easily through the remainder of the store.

Mo.	O.H.	Order
Jan.	0	0
Feb.	0	12
Mar.	12	24
Apr.	36	24
May	48	18
June	42	16
July	34	2
Aug.	18	0
Sept.	2	0
Oct.	0	0
Nov.	0	0
Dec.	0	0



PUT AN END TO CORROSION WITH POXYGLAS TANKS!

What do you look for in solution storage or handling tanks? Resistance to corrosion is important.

But there are other characteristics you need: low initial cost, strength, low maintenance. And the tank must be able to hold all common fertilizer solutions and agricultural chemicals.

Check these desirable characteristics: see why POXYGLAS is your answer!

RESISTANCE TO CORROSION: Epoxy resin and glass are the best known deterrents to corrosion. POXYGLAS tanks are a combination of glass and epoxy resin, inside **and** out! With its resin-rich interior surface, POXYGLAS is ideal for holding all low and non-pressure fertilizer solutions: phosphoric acid, aqua ammonia, urea and nitrogen solutions, all complete mixes.

LOW INITIAL COST: Compared to other tanks with the same corrosion resistance, POXYGLAS tanks cost far less.

STRENGTH: Because of the unique filament winding process, POXYGLAS has more than twice the strength-to-weight ratio of highest quality steel.

LOW MAINTENANCE: POXYGLAS tanks require no maintenance other than normal cleaning.

Complete range of sizes from 300 to 16,000 gallons.

For more information on POXYGLAS tanks write BS&B, Industrial Air Park, Ardmore, Oklahoma.

Manufacturers of Oil and Gas Field Processing Equipment, Control Valves, Safety Heads, Electronic Instrumentation, Heat Engineering Equipment, Mass Flowmeters, Filament Wound Glass Fiber Products, Grain Storage and Processing Equipment.

17-HD10

B.S.B

BLACK, SIVALLS & BRYSON

ARDMORE • KANSAS CITY • OKLAHOMA CITY • TULSA

Expanda-Kraft offers "strongest, toughest shipping protection" says Owens-Illinois Executive

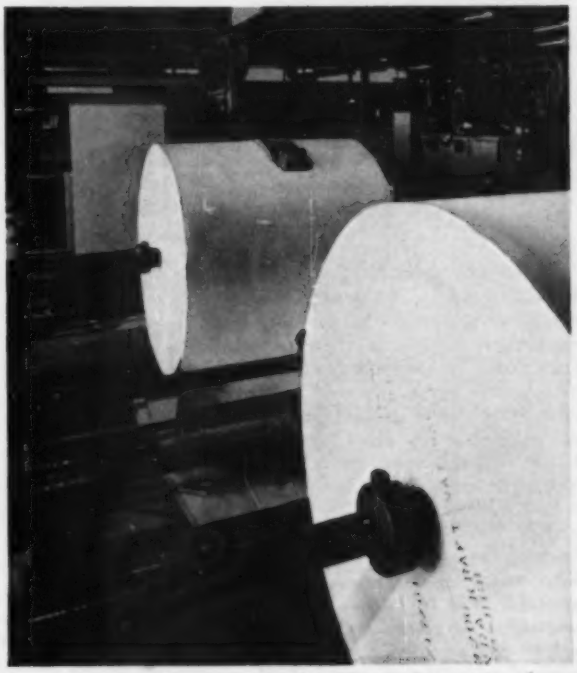
"We can recommend Expanda-Kraft unhesitatingly whenever a customer asks for strong, tough, maximum shipping protection that can be provided for his product—no matter whether it be alfalfa or yeast, asphalt or zinc sulphate, or anything in between," says P. L. Chism, Plant Manager, Owens-Illinois' Multiwall Bag Division, Valdosta, Ga.

"In heavier bag weights, the Expanda-Kraft paper actually saves the customer money by reducing the total basis weight required, while furnishing more strength than can be available with comparable weights of standard flat kraft.

"Expanda-Kraft produces a sharp and clear printed image because of its low absorbency. Not only do we score an impressive bonus in appearance, thanks to Expanda-Kraft, but it also helps us cut down on ink and glue costs because of this lower absorbency," Mr. Chism reports.

"Our customers particularly appreciate the porosity of Expanda-Kraft paper, for it facilitates the escape of air during filling, a vital factor in maintaining efficient filling rates with valve-type bags. Ordinarily, this kind of porosity might connote high absorbency, but such is not the case with Expanda-Kraft."

Find out what Expanda-Kraft® can do to improve your package. *The H&W Division of Scott does not make bags.* But we do make Expanda-Kraft paper in basis weights of 40 to 100 lbs. and in colors of Natural, Shell White and a clean, bright White. For information and samples, write Hollingsworth & Whitney Division, Scott Paper Company, 230 Park Avenue, New York 17, N. Y. or 111 West Washington Street, Chicago 2, Ill.



Hollingsworth & Whitney Division
SCOTT PAPER COMPANY

MATERIALS HANDLING
CUSTOM APPLICATION

Fluid Film Solves Corrosion Problem For Western Liquid Fertilizer Company

"WHAT are you doing about corrosion?" This is the first question one hears when liquid fertilizer people get together.

Agriform Chemical Co., Inc., Woodland, Calif., says they have the answer to it. Having fought the problem for the past 16 years, using "every conceivable approach," the company claims to have found a material that is not only effective but is also inexpensive. D. W. Galbraith, president, reports:

"Five years ago the manufacturers of Fluid Film sent us material for trial in storage tanks. The material was applied in accordance with manufacturer's recommendations but did not perform as we had hoped.

"However, the physical nature of the material indicated that it had definite possibilities and the probability existed that the methods of application could be altered to make it workable. We started an experimental program and ended up with a method of application using one-fourth of the amount formally recommended with excellent results.

"We now as a standard practice coat all our storage tanks, delivery tanks, and field application equipment with Fluid Film and are entirely happy with the results."

Fluid Film B is a non-water-soluble gel which is non-volatile and non-oxidizing, remaining permanently soft and flexible after application, according to Galbraith. It forms a tenacious gel bond to metal surfaces, providing a mobile, self-healing barrier which excludes air, microorganisms, and corrosive gases.

One brush coat application every five years for stationary tanks and every two years for mobile tanks with considerable sloshing of material can be anticipated, he adds.

It is said to "provide two to three times the usable life of an uncoated mild steel tank for the handling of aqua ammonia, nitrogen solutions, and liquid mixed fertilizers. ☆

THE HIGH COST OF HEADLINES

(Continued from page 16)

including top research men in the USDA, FDA, NIH, the land grant colleges, and experiment stations have been assiduously searching for all documented evidence of injury to the public from use of agricultural chemicals which have been approved by Federal and State Agencies and employed in accordance with label recommendations. So far, at least, no authentic case has turned up. There have been industrial accidents in manufacturing plants and on the farm but these are not the fault of the chemical but of the people who misuse it. Such mishaps are regrettable and to be avoided by good industrial hygiene and concomitant safety education *but they cannot be blamed upon the chemical itself, anymore than an auto smashup is Mr. Henry Ford's fault . . .*"

Organic farming, "health foods," and many other subjects were covered brilliantly by Dr. White-Stevens.

MACDOUGALL VS. THE TIMES

The New York Times editorial, "Controlling the Pesticides," was answered by the NAC, and was in turn answered by the *Times*, which said "we simply cannot agree with the statement of the California committee, as quoted by Mr. Hitchner, that present laws afford protection."

Iver C. MacDougall of Stauffer Chemical Company took issue with the *Times*' comments. Here's the way he led off in the *Times:*

"In your Aug. 16 footnote to L. S. Hitchner's response to your recent editorial on 'Controlling the Pesticides' you state that 'the industry has not acted responsibly in dealing with the hazards of chemical insecticides.' In other words, you accuse the industry of irresponsibility with respect to such hazards."

Concerning the *Times*' statement that ". . . no agency of Government is undertaking to educate about the hazards implicit in the use or misuse of pesticide chemicals," he said:

"The relevant public, so far as this problem is concerned, comprises the farmers and landowners who utilize such chemicals. These persons are fully advised of all known or suspected hazards by the warnings which are required on all labels by the Pesticide Regulation Branch of the United States Department of Agriculture and by parallel state agencies.

"The PRB has for several years required a label warning against dangers to wildlife except where the manufacturer is able to demonstrate, by cogent evidence, that no wildlife hazard exists. The regulations governing label warnings also apply, in general, to advertising literature on pesticides."

EXPLAINS DENVER CENTER

MacDougall explained that in addition to the pesticide regulation branch the United States Fish and Wildlife Service is directly concerned in assessment of chemical danger to wildlife.

"This agency maintains a Wildlife Research Center near Denver at which pesticide chemicals are screened for their effect of wildlife.

"This program," he explained, "is actively supported by the industry. A master screening contract is now being actively negotiated with the Wildlife Research Center which will standardize and expedite these screening procedures." Emphasing again the necessity of reading labels carefully, he said that the nation's newspapers could "render a significant public service in this regard by giving editorial support to this continuing 'read the label' campaign."

MacDougall also defended the industry on the *Times* charge about damage to wildlife from the use of pesticides being "widespread," adding that its accusation of industry irresponsibility and government "recklessness" goes far beyond the mark. ☆

The Slurry

SAY IT AIN'T SO

Do you know how fast flies multiply? Here are some frightening statistics: One pair of flies, if all their offspring survived, could produce 191 quintillion flies in a single season. These would weigh 9.5 trillion tons and occupy 110.5 quadrillion cubic feet.

Quick, get out the DDT!

THE NEWEST DIET FAD

At the rate our citizens are catching hold of the diet fad, the "S" in U.S. is going to stand for "slim." *The Slurry* has kept a close eye on this movement and thought it had reached its limit but the newest diet fad is one for the books.

At the agricultural experiment station in Lubbock, Texas, a project is underway to put cotton insects on a diet.

This gay blade dancing a jig is Mr. Green. He's the symbol for Spencer Chemical's new high-analysis fertilizer of the same name.

The station is growing a new variety of insect-resistant cotton developed by USDA. Secret of the variety's success is that it produces floral nectar only. This forces the insects to seek food elsewhere when the floral nectar is gone. This is coupled with the hope that the insects will not return to lay eggs which hatch into the voracious larvae found on cotton.

Lepidopterous insects like nectar. In an experiment, equal numbers of adult insects (moths) were placed in cages which contained a standard cotton variety with a large number of nectaries (gland-like organs which produce nectar) and one of the new nectarless varieties. By actual count seven to 10 times as many leafworms and loopers were found on the standard variety as compared to the nectarless cotton.

Seen any skinny insects in the Lone Star state lately?

PESTICIDE MARKETING . . .

(Continued from page 13)

A good example is the Nematology Workshops that we sponsored several years ago. In a series of seminars and workshops held throughout the United States, prominent scientists discussed the tremendous economic losses farmers suffered because of damage inflicted on many crops by nematodes. We feel that these efforts have greatly increased the market for nematocides.

HOW SHELL SELECTS ITS MEN

The work of our technical departments, service groups, and management is of little value if it is not intelligently conveyed to our customers and state and federal workers. In my opinion, the key to this is the caliber of our local field representatives, who serve as links between our company and the formulators and state extension and research services.

To assure ourselves of having the highest caliber men in the field, we recruit continuously from the leading agricultural colleges. After selecting a young man, he is put through a training course which lasts from two to two and a half years. This training consists of time spent in our laboratories, our Technical Service and Sales Development Departments, and other head office departments. The young man is then sent to the field where he works in one of our district offices under the direct guidance of a district manager for one or two years. After this period, if he is qualified, he is given his own territory.

This procedure takes a long time and is expensive, but we feel it is necessary if we are to have the type of man in the field who can continue expanding markets for our present products and assist in the development of new chemicals. We believe that a great deal of our success can be attributed to the high caliber men we have in the field.

I should like to end with a few words about general business conditions. Although the season is about over, it will still take time to compile figures to see how 1961 compared with previous years. I believe that the final report will show the agricultural chemicals business in 1961 compared favorably with the past three-year average. The use of insecticides on cotton will be down slightly, but I believe this will be compensated for by increased use of pesticides in other areas. Our company is looking forward to a good year in 1962, helped by the results of our development efforts with two of our new products, Phosdrin® insecticide and Vapona® insecticide. ☆

Calendar

November 2-3. Pacific Northwest Plant Food Association, annual convention, Hotel Gearhart, Gearhart, Ore.

November 6. South Carolina Plant Food Educational Society, annual meeting, The Clemson House, Clemson Agricultural College, Clemson, S. C.

November 6-7. Washington State Weed Association, annual weed conference, Chinook Motel & Tower, Yakima, Wash.

November 8-10. Fertilizer Industry Round Table, Mayflower Hotel, Washington, D. C.

November 12-14. California Fertilizer Association, 28th annual convention, Jack Tar Hotel, San Francisco, Calif.

November 14-15. Farm Chemicals Marketing Seminar, Yale Club, New York City. Sponsored by FARM CHEMICALS.

November 21. Manufacturing Chemists' Association 11th semi-annual meeting, Commodore Hotel, New York City.

November 27. Council on Fertilizer Application, and Divisions IV (Soil Fertility) and IV-B (Plant Nutrients) of SSSA, joint meeting, Sheraton-Jefferson Hotel, St. Louis, Mo.

November 27-30. Entomological Society of America, McAllister and Columbus Hotels, Miami, Fla.

November 27-December 1. 28th Exposition of Chemical Industries, New York Coliseum, New York City.

December 6-7. Alabama Soil Fertility Society annual meeting, Whitley Hotel, Montgomery, Ala.

December 7-8. Michigan Fertilizer and Lime Conference, Kellogg Center, Michigan State University, East Lansing.

December 11-12. Northern Seedsmen's Association, annual winter meeting, Radisson Hotel, Minneapolis, Minn.

December 11-14. North Central Weed Control Conference, Weed Society of America, St. Louis, Mo.

December 13-15. American Society of Agricultural Engineers, winter meeting, The Palmer House, Chicago, Ill.

January 3-5. Northeastern Weed Control Conference, 16th annual meeting, Hotel New Yorker, New York, N.Y.

January 16-17. Fertilizer, Machinery & Chemical Exposition, Pershing Municipal Auditorium, Lincoln, Neb.

January 17-19. Southern Weed Conference, Hotel Patten, Chattanooga, Tenn.

January 22-25. National Plant Engineering & Maintenance Show, Convention Hall, Philadelphia, Pa.

February 6-7. Vertebrate Pest Control Conference, Senator Hotel, Sacramento, California.

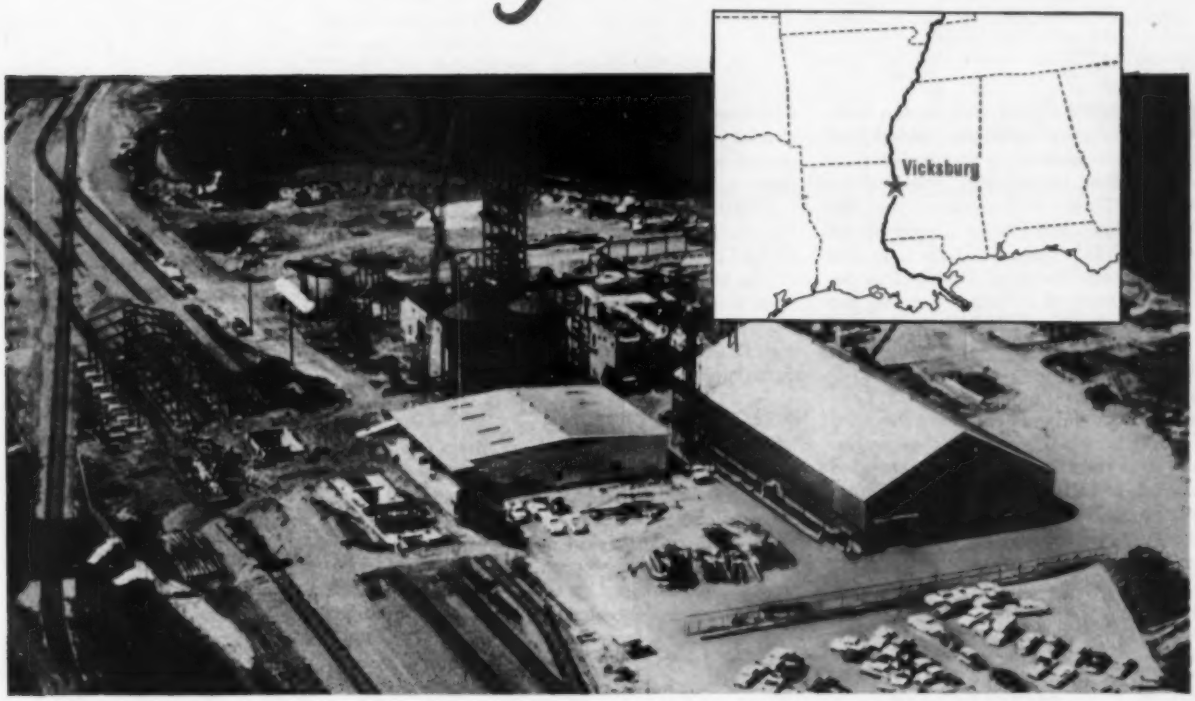
February 12-13. Short Course on Fertilizer Technology, Purdue University, Lafayette, Indiana.

February 13-14. Aquatic Weed Control Society, third annual meeting, LaSalle Hotel, Chicago, Ill.

February 15-16. Midwest Agronomists and Fertilizer Industry Representatives, annual joint meeting, Edgewater Beach Hotel, Chicago, Ill.

March 13-14. Symposium on Packaging of Chemical Products, Chase-Park Plaza Hotel, St. Louis, Mo.

Coming Soon...



Aerial view of the new Vicksburg plant of Southwest Potash Corporation—now under construction.

- **EXTRA advantages for fertilizer manufacturers, formulators, mixers.**
- **EXTRA quality in the product you buy.**
- **EXTRA quality in the product you sell.**
- **EXTRA sources of profit for you.**

HIGH-K

SOUTHWEST POTASH CORPORATION

1270 Avenue of the Americas • New York 20, N.Y.

"STILL SECOND BEST YEAR"—

FERTILIZER USE

was off 430,825 tons in 1960

EVERYTHING wasn't rosy in the fertilizer industry in the year ended June 30, 1960 — according to the fertilizer consumption report just released by USDA. Total consumption in the United States and Puerto Rico dropped to 24,877,415 tons, 430,825 tons less than the previous year. Despite this decline the level of fertilizer use was the second highest in U.S. history.

The slight dip in total consumption reflects some moderate changes in fertilizer usage throughout the country. Consumption of mixed fertilizers dropped 590,058 tons while quantity of secondary and trace nutrient materials used jumped 154,914 tons. Direct application of N, P or K (such as anhydrous ammonia, potash products etc.)—also declined, dropping 166,345 tons.

Decreases in consumption occurred in 31 states. Consumption in the western states, however, increased sharply. In the Mountain and Pacific regions, fertilizer usage increased by 354,607 tons, while declining 944,665 tons in the rest of the U.S.

Although the trend to market products containing higher concentrations of NPK tends to lower the gross tonnage, most areas in which decreases occurred also showed a corresponding decline in plant nutrient use.

FERTILIZER MIXTURES

Mixtures remained the most popular form of fertilizer—62.9% of the total consumed. There were 1870 different grades reported, but only 127 were consumed in quantities of 10,000 tons or more each. Most popular grades were 5-10-10 (1,567,900 tons), 4-12-12 (1,165,698), 5-20-20 (951,858), and 12-12-12 (882,726).

The trend to higher analysis in mixtures continued. National average was 6½% nitrogen, 12.99% potassium, and 12.06% potash. Nitrogen showed the biggest gain over the previous year.

DIRECT APPLICATION

Direct application of N, P or K dipped slightly below 1958-59 totals to 7,849,664 tons. Biggest decrease was in the phosphate class of materials followed by natural organics and potash.

The decline in consumption of phosphates can be traced to the north central and south central states where decreases ranged from 8 to 21%. The drop in tonnage of natural organic products was caused by decreased consumption of dried manures, activated sewage sludge, and tankage. The lower consumption of potash products, although not significant, was mostly due to decreases in the use of potassium chloride throughout most of the country.

TRACE ELEMENTS

Despite the drop in fertilizer usage, consumption of secondary and trace nutrient materials jumped 12.7% over 1958-59, to 1,378,129 tons. Of this total, 1,296,955 tons was calcium sulfate (gypsum).

TOTAL USE OF NPK

Primary plant nutrients showed a slight increase in usage — 47,459 tons over 1958-59. Consumption of nitrogen and available P_2O_5 jumped 65,571 and 20,390 tons, respectively, while K_2O decreased 38,502 tons.

While consumption of available P_2O_5 increased, use of total P_2O_5 dropped 30,448 tons. This loss resulted mainly from the decrease in use of phosphate rock for direct application in Illinois and Missouri.

NITROGEN

Mixed fertilizers, anhydrous ammonia, and ammonium nitrate accounted for 70% of the total consumption of nitrogen. In fact, these three accounted for more than one-half of the nitrogen consumed in each region except the Pacific where principal use of nitrogen was as anhydrous ammonia, aqua ammonia, and ammonium sulfate.

Copies of this report, *Consumption of Commercial Fertilizers and Primary Plant Nutrients in the United States Year Ended June 30, 1960* may be obtained by writing U.S. Department of Agriculture, Agricultural Research Service, Washington, D.C. ☆

KINDS OF FERTILIZER CONSUMED

By region, year ended June 30, 1960

Table 1. - Kinds of fertilizer consumed, by region, year ended June 30, 1960[1/]

Kind	New England	Middle Atlantic	South Atlantic	East North Central	West North Central	East South Central	West South Central	Mountain	Pacific	Alaska, Hawaii, and Puerto Rico	United States
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
MIXTURES	346,028	1,749,468	5,018,460	3,398,621	1,562,587	2,078,131	714,080	92,106	417,924	272,217	15,649,622
N-P-K	321,664	1,637,957	4,535,060	3,165,446	1,280,668	1,853,461	614,178	42,646	297,798	236,152	13,985,030
N-P	60	313	1,193	55,216	220,836	11,190	51,743	49,367	111,792	2,247	503,957
P-K	24,304	111,030	218,250	177,499	61,080	207,726	46,664	93	4,162	6,304	857,112
N-K	0	168	263,957	460	3	5,754	1,495	0	4,172	27,514	303,523
CHEMICAL NITROGEN MATERIALS	12,154	85,672	828,021	494,779	718,623	615,164	515,893	246,440	951,398	76,502	4,544,646
Ammonia, anhydrous	0	3,016	25,878	79,904	170,805	71,570	165,603	48,079	143,440	594	708,889
Ammonia, aqua	0	0	948	6,818	17,204	4,225	8,297	23,520	323,989	41,970	426,971
Ammonium nitrate[2/]	5,198	31,702	157,038	154,954	311,675	283,683	127,371	79,228	79,883	562	1,231,294
Ammonium nitrate-limestone mixtures	46	1,520	218,744	1,927	67	37,070	3,503	1,053	69	0	263,999
Ammonium sulfate	252	11,479	5,784	98,509	10,223	14,385	80,062	44,799	244,594	24,708	534,795
Calcium cyanamide	625	6,178	8,380	675	150	9,083	8,003	2,758	6,410	4	42,266
Calcium nitrate	0	9	9,464	50	0	579	0	10,005	29,040	581	49,728
Nitrogen solutions	1,795	7,396	170,810	112,603	199,814	28,152	36,170	14,452	79,067	0	650,259
Sodium nitrate	1,605	11,702	223,951	1,870	424	159,070	54,651	561	377	130	454,341
Urea	1,248	6,179	4,490	28,819	5,497	4,004	30,976	19,127	37,656	6,202	142,198
Other	1,385	6,491	2,534	10,650	2,764	3,343	1,257	2,858	6,873	1,751	39,906
NATURAL ORGANIC MATERIALS	16,815	36,681	31,239	41,271	18,335	2,555	7,152	7,754	329,530	132	491,464
Blood, dried	3	31	57	0	3	0	0	22	2,070	0	2,186
Castor pomace	686	293	3,302	0	0	0	0	0	3,510	0	7,791
Compost	1	3,639	92	4,586	8,728	30	2,528	824	0	0	20,428
Cottonseed meal[3/]	1,889	108	1,800	0	0	9	0	2	6	0	3,814
Fish scrap, meal, emulsions	330	66	1	0	0	0	0	0	1,324	0	1,721
Manures, dried	4,694	11,234	6,030	7,838	3,417	1,037	2,780	1,745	[4/]273,449	0	312,224
Sewage sludge, activated	6,871	15,543	10,474	26,448	6,029	1,285	1,844	3,710	17,281	95	89,580
Sewage sludge, other	0	0	52	1,754	126	12	0	900	29,922	12	32,778
Tankage, all	2,068	5,367	3,509	645	30	182	0	77	827	25	12,730
Other	273	400	5,922	0	2	0	0	474	1,141	0	8,212
PHOSPHATE MATERIALS	31,975	81,933	87,917	642,374	517,040	193,800	247,343	211,091	311,532	14,224	2,339,229
Ammonium phosphate: 11-48[3/]	1	2,463	110	17,370	52,169	2	4,733	15,602	22,537	1,396	116,383
Ammonium phosphate: 13-39[3/]	0	3	0	97	22,705	17	18,344	4,212	5,808	0	51,186
Ammonium phosphate sulfate: 16-20[3/]	0	0	0	1,212	101,028	96	97,159	60,780	117,499	561	378,335
Ammonium phosphate nitrate: 27-14[3/]	0	0	69	125	7,397	3,297	0	5,945	7,945	0	24,778
Basic slag	0	0	12,172	0	0	57,911	2,593	0	0	0	72,676
Bonemeal: raw and steamed	1,173	3,055	1,907	1,253	237	353	202	36	1,788	207	10,213
Calcium metaphosphate	2	459	1,368	4,849	12,178	11,231	249	184	51	0	30,571
Diammonium phosphate: 21-53[3/]	3	110	661	4,528	7,173	2,972	1,107	10,382	3,108	837	30,881
Phosphoric acid	0	35	0	351	37	0	4,674	12,486	14,559	0	32,162
Phosphate rock	466	7,303	24,342	470,510	123,095	11,855	20,338	40	429	3,208	661,586
Colloidal phosphate	0	393	1,319	780	1,240	4,982	3,095	50	80	0	11,939
Superphosphate: 18%	1,061	6,117	15,183	5,733	9,180	19,474	0	0	2,171	479	59,398
" 19%	5,251	206	1,543	3,274	13	89	0	3,441	7,284	0	21,101
" 20-22%	23,745	38,858	26,455	44,834	32,432	68,731	30,257	17,443	103,083	474	426,312
" 23-44%	0	0	76	2,322	889	2,745	595	0	764	5,038	12,429
" 45%	6	1,164	153	19,314	41,891	4,266	4,614	64,130	19,892	9	155,439
" 46%	61	1,757	1,496	57,382	101,876	4,780	39,230	15,066	1,255	1,496	224,399
" 47-54%	2	10	139	4,681	3,480	999	134	1,294	41	0	10,780
Other	202	0	924	3,759	0	0	19	0	3,238	519	8,661
POTASH MATERIALS	2,041	9,433	76,608	201,760	49,605	66,265	40,418	2,297	15,909	9,989	474,325
Lime-potash mixtures[5/]	0	47	18,211	0	0	6,475	0	0	0	0	24,733
Manure salts	0	0	283	0	6	0	1,221	0	0	0	1,510
Potassium chloride: 50-60%	1,141	6,169	33,590	195,612	46,367	30,601	38,007	715	8,545	8,622	389,369
" magnesium sulfate	35	1,338	2,891	2,907	266	1,399	69	461	790	105	10,261
" nitrate	99	13	125	6	0	0	0	0	0	0	243
" sodium nitrate[7/]	0	217	15,436	235	0	1,663	991	0	0	0	18,542
" sulfate	191	1,589	4,289	2,948	2,921	6,127	130	1,121	6,423	1,059	26,798
Other	575	60	1,783	52	45	0	0	0	151	203	2,869
SECONDARY AND TRACE NUTRIENT MATERIALS	449	5,812	108,072	5,460	1,268	4,758	3,499	28,691	1,216,927	3,193	1,378,129
Aluminum sulfate[3/]	0	8	15	30	1	0	0	0	79	0	133
Borax[3/]	103	173	480	485	67	380	7	2	624	0	2,321
Calcium sulfate (gypsum)	311	1,034	104,581	1,311	945	4,227	1,175	20,988	1,162,383	0	1,296,955
Copper sulfate[3/]	0	4,077	302	42	4	0	0	9	154	0	4,588
Iron sulfate[3/]	0	10	195	5	0	0	3	234	2,886	2,843	6,176
Magnesium sulfate[3/]	22	265	243	258	32	15	1	19	149	224	1,228
Manganese sulfate[3/]	8	139	436	190	3	0	0	9	49	0	836
Mixed minerals[3/]	1	25	721	1,057	132	1	84	725	3,724	0	6,470
Sulfur: 25-99% S	4	16	632	14	21	7	971	1,838	28,410	0	31,713
Sulfuric acid: 40-93%	0	0	0	0	0	0	1,258	1,571	1,203	0	4,032
Zinc sulfate[3/]	0	8	467	38	61	128	0	63	3,180	115	4,080
Other	0	57	0	2,010	0	0	0	3,433	14,086	11	19,597
GRAND TOTAL	409,462	1,968,999	6,150,317	4,784,265	2,867,458	2,960,673	1,528,385	588,379	3,243,220	376,257	24,877,415

1/ Includes the following fertilizers distributed by Government agencies for test demonstrations: - in mixtures, 11-33-0 grade 108 tons, 15-15-15 grade 172 tons, 30-10-0 grade 3,838 tons; in materials, calcium metaphosphate 4,231 tons, diammonium phosphate (21-53-0, 20-52-0) 3,789 tons, nitrogen solutions (30%) 2 tons, and superphosphate (54%) 618 tons. Excludes liming materials and the quantities of materials used in the manufacture of commercial mixtures. 2/ Undetermined quantities may have been used for non-fertilizer purposes. 3/ Distributed by manufacturers of fertilizers. 4/ Includes an estimate of 270,000 tons consumed in California. 5/ Includes all reported quantities of the grade. 6/ Additional quantities are given free to farmers for which no records are kept. 7/ Additional quantities may have been reported by grade under mixtures.

Again...

New Solar nitrogen plant at Joplin, Missouri, dedicated to serving your nitrogen needs still better

The new Solar nitrogen plant at Joplin, Missouri, now extends Sohio service throughout the central part of the United States. The plant, constructed by Solar Nitrogen Chemicals, Inc., enables Sohio (acting as sales agent for Solar) to better serve the nitrogen needs of the fertilizer industry. It substantially increases availability of Solar nitrogen materials during peak seasons.

If you're a regular customer, you know that continuous improvements in service, delivery and product are SOP of the Solar-Sohio team. This leadership has contributed many "firsts" in the fertilizer industry during the past few years. In addition to the new Joplin plant, they have pioneered these improvements in service:

- First to give truck delivery of solutions and anhydrous.
- First to give bulk truck delivery of urea.
- A leader in the use of pressure, aluminum tank cars for nitrogen solutions.
- First to build large bulk storage to meet on-season demand of the industry.
- Further increased on-season availability by increasing capacity of Lima ammonia plant, urea unit and nitric acid unit.

Helping you solve fertilizer formulation problems is another area where the Solar-Sohio team can point to impressive achievements. For example, they...

Photographed July 29
before completion.

something new from the Solar-Sohio team

- Pioneered research in liquid fertilizer solubility.
- Devised practical but accurate shortcuts for methods of liquid formulation . . . i.e., triangulation formulation, formulation pads.
- Led in researching nitrogen solutions solubility and vapor pressure.
- Pioneered special high fixed-to-free nitrogen solutions for dry and liquid manufacturing for complete fertilizers.
- Led in promoting the use of urea-ammonium nitrate solutions to reduce formulation costs of liquid fertilizers.

We believe this record of leadership shows two especially significant facts about our company.

First is a genuine feeling of responsibility to serve your nitrogen needs as completely and as efficiently as we know how. Second is a thorough knowledge of agriculture . . . a real insight into your fertilizer formulation needs.

Right now is a good time to line up your future nitrogen needs. Call or write your "Man from Sohio" for a full line of Solar nitrogen products, including all grades of urea, ammonia and nitrogen solutions. Two plant locations assure dependable supply, quick delivery.

SOHIO

SOLAR NITROGEN CHEMICALS, INC.
Sohio Chemical Company, Agent

Sales Offices: Lima, Ohio and Kansas City, Mo.
Plants at: Lima, Ohio and Joplin, Mo.

A-12

International Minerals & Chemical Corp., has negotiated a $40 million loan with the Prudential Insurance Company of America. IMC reports it will be used for capital expansion, retirement of long-term debt, and for cash to support increasing sales volume. Major capital project is the new Saskatchewan potash mine and plant now being built by its Canadian subsidiary. The plant is expected to be in production next summer at a capacity of 420,000 tons per year, with an output of 1,200,000 tons by early 1963.

Someone showed ingenuity at **W. R. Grace & Co.** in an idea for promoting the triple superphosphate of Grace's Davison Chemical Division. The model hopper car, complete as to

detail, is not only a reminder to customers of advantages in bulk buying, but it can also be used as a paperweight. The top comes off to show samples of the fertilizer material.

A forecast of chemical industry sales of over $30 billion for 1962 was was made in a recent speech by Chris F. Bingham, vice-president, chemical sales, chemical division of Pittsburgh Plate Glass Co. Speaking before the National Industrial Conference Board, Bingham reported that enormous quantities of chemical fertilizer will be required to sustain sufficient soil fertility to produce food for the exploding population. Sales in 1960 were $27.7 billion, with 1961 sales expected to top $29 billion.

Witco Chemical Co., Inc.'s board of directors recently voted a regular quarterly dividend of 20 cents per share.

Well-written and beautifully illustrated is a 20-page brochure just published by W. R. Grace & Co. It is a report on its fast-growing chemical operations. Write the company's Public Relations Department, 3 Hanover Square, New York 4, N.Y., for a copy of *Now One Quarter Billion in Chemical Sales.*

Under a new, easier payment policy, fertilizer manufacturers and distributors in TVA's distributor demonstration program may now apply for up to 90 days credit. This credit will be available annually on shipments made from September 1 through February 28. The new policy is expected to meet the growing need for a more regulated and formalized credit program in the fertilizer industry.

President Arturo Frondizi recently signed a decree approving **Hooker Chemical Corp.'s** investment in Duranor, Industrias Quimicas Socieded Anonima Industrial y Comercial, an Argentine affiliate formed to produce phenol using the Hooker process. An equivalent stock interest in the jointly owned company will be held by Atanor, Compania Nacional para la Industria Quimca, S.A.M., a major manufacturer of chemicals and plastics in Argentina. Duranor will be located at Rio Tercero, about 450 miles northwest of Buenos Aires.

Wilson & Geo. Meyer & Co. is now the exclusive agent for handling Stauffer Chemical Co.'s Anchor Brand complex fertilizers, to be produced at a new plant at Dominguez, Calif. These include ammonium phosphate sulfate, nitrogen-phosphate, and nitrogen-phosphate-potash fertilizers, available both in bag and bulk.

In the third general expansion in **Escambia Chemical Corporation's** nitrogen operations during the past year, the company's new plant near Pace, Fla., will begin manufacturing urea solutions January 1. The plant will have a rated capacity of 20,000 tons per year.

A recent appointment was that of George N. Palmer as mid-Atlantic district field sales manager for agricultural chemicals, made by **Allied Chemical's General Chemical Division.** Palmer has been with the division for seven years. His headquarters are at the company's Camden, N.J., sales office.

Chase Bag Co. Something new in closures of heavy-duty polyethylene bags has been developed, which will be a boon to packagers or shippers. Chase-Lok is the trade name, and field tests showed outstanding features, such as a loss of only 2 pounds net loss in multiple carload shipments.

Diamond Alkali Co. and **Reasor-Hill Corp.** has announced that a non-exclusive royalty-bearing sublicense has been granted by Diamond Alkali to Reasor-Hill under U.S. Patent 2,792,-295. This provides rights for the manufacture and sale of Weed Rhap, Reasor-Hill's granular herbicide. The two firms also announced the amicable settlement of Diamond's civil action against Reasor-Hill for patent infringement. Diamond reports that additional sublicenses for the granular herbicide are available to other firms upon request. The company has an exclusive license under this patent.

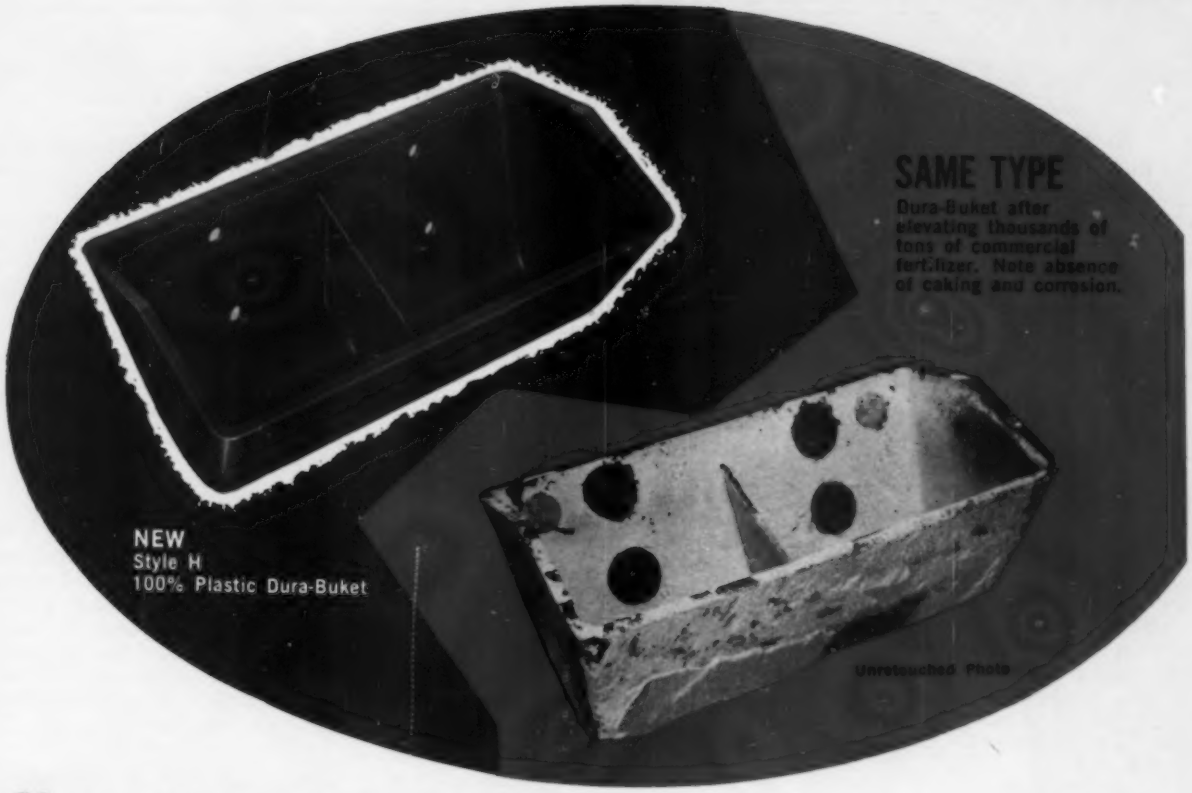
Agri-Briefs, a new digest publication of the Barnard & Leas Mfg. Co., Inc., contains news of interest to those in the chemicals processing equipment

field. It has a wealth of ideas. The source of each item included in the digest is also given so additional information can be obtained if desired. The booklet is free. Write B & L, P. O. Box 1787, Cedar Rapids, Iowa, and ask to be put on their mailing list.

Olin Mathieson Chemical Corp. reported sales and operating revenues for the first six months of 1961 totaled $349,730,000—a gain of 0.4% over the comparable 1960 period, while net profits showed a 22.8% loss.

On general sale for the first time is Foster D. Snell's *Common Chemical Market* directory of 6000 chemical companies in the European Common Market and European Free Trade Association. Its 243 pages list the countries alphabetically, with a review of the chemical industries of each country given.

Monsanto Chemical Co.'s wholly owned subsidiary, Monsanto Overseas S. A. (MOSA), has established European headquarters in Geneva, Switzerland, consolidating several European operations. Geneva's central location and MOSA's outstanding success in its research program are key factors in



New Style H Dura-Bukets-- the profitable way to elevate fertilizer

Distributorships available in choice territories.

Here are FIVE BIG REASONS why the all-plastic Style H DURA-BUKET puts new savings into your commercial fertilizer production —

1 WON'T CAKE
The slick walls and rounded corners of the DURA-BUKET prevent fertilizer build-up. DURA-BUKET is **self-cleaning.**

2 WEIGHS LESS
Each DURA-BUKET weighs only 2½ lbs. This is a weight reduction of 924 lbs. on a 100-bucket elevator . . . and that means **longer chain life.**

3 WON'T CORRODE
The special DURA-BUKET plastic is unaffected by metal-eating fertilizer chemicals. DURA-BUKETS **stay** in service.

4 RESISTS ABRASION
Resilient plastic "gives" under impact of heavy loads of sharp, tough particles. This elasticity prevents cutting.

5 CUTS OVER-ALL COSTS
A DURA-BUKET keeps operating while other types are being cleaned or replaced. You save not only bucket costs, but avoid expensive down-time as well.

For full details on cost-saving DURA-BUKETS, write to:

Dura-Buket DIVISION

NATIONAL OATS CO. • EAST ST. LOUIS, ILLINOIS

making this move. William M. Russell, president of MOSA, will head the operation.

There's been a 10% increase in the use of agricultural anhydrous ammonia in the 1960-61 fertilizer year over that of 1959-60. The Agricultural Ammonia Institute conducted a 24-state survey, with over 140 distributors contributing consumption statistics. Good promotional activity, field demonstrations, and especially farmer-education programs are given a great deal of credit for this increased usage.

People

Michigan Chemical Corp. has elected Fred W. Elliott as executive vice-president. He has had extensive experience in chemical research and development, customer service, and technical field development. Elliott has served in various executive capacities with other companies. Just prior to his acceptance of this position, he was group vice-president of H. K. Porter Co., Inc., of Pittsburgh.


Shirley

Commercial Solvents Corp. has named Jack D. Shirley to their Agricultural Chemicals Department, where he will service accounts in a four-state area. With headquarters in St. Louis, he will be responsible for accounts in Missouri, Iowa, Kansas, and Nebraska.

Hooker Chemical Corp. William D. Morrison recently joined the company as general manager of the newly-formed International Division. He has been in the chemical industry since 1948, and for the past five years has been with FMC Corp.

Climax-Molybdenum Co. The appointment of G. Robert Couch as technical advisor to the vice-president — Eastern operations for the company was recently announced. Couch, a registered professional engineer, left the parent company, American Metal Climax, Inc., to take this new position. He joined the company in 1957 after serving for 14 years as development engineer with National Lead Co.


Sprague

Monsanto Chemical Co.'s Agricultural Chemicals Division is expanding their network of local facilities for custom formulation. A. Milton Sprague, manager of the plant at El Dorado, Ark., is the administrator of this program. He will work with marketing personnel in advising and aiding customers in setting up and operating fertilizer bulk blending plants.

American Cyanamid Co.'s Agricultural Division has a new assistant general manager. He is James F. Bourland, whose headquarters are at the new agricultural center at Princeton, N.J. Dr. Bourland has been with the company since 1941 and has held various posts in the research and supervisory fields.

Freeport Sulphur Co.'s new president is Robert C. Hills, who succeeds Charles A. Wight, now vice-chairman of the board. Hills joined the company in 1934, was named assistant to the president in 1950, and became a director and executive vice-president in 1955. Until the Castro government took over the company's Cuban property, Hills, as president of Freeport Nickel Co., had been developing a revolutionary metallurgical process to extract nickel and cobalt from the Cuban ores.

Towmotor Corp. Galen Miller has been elected president. C. Edgar Smith, president since 1951, has assumed the newly-created post of chairman of the executive committee of the board of directors. Robert L. Fairbank has succeeded Miller as executive vice-president.

Armour Agricultural Chemical Co. recently made several personnel changes. Oscar N. Carmichael has been named assistant division manager, and Robert A. Cannon division credit manager at the company's Columbus, Ga., facilities. Harold S. Rose is now assistant manager of the Cincinnati, Ohio division.

Highway Equipment Co. has named Gale E. Allen as executive vice-president. He is continuing many of his former duties as general sales manager, as well as taking on the responsibilities of administration. Allen has been in the construction and maintenance machinery business since 1929.

Suppliers Briefs

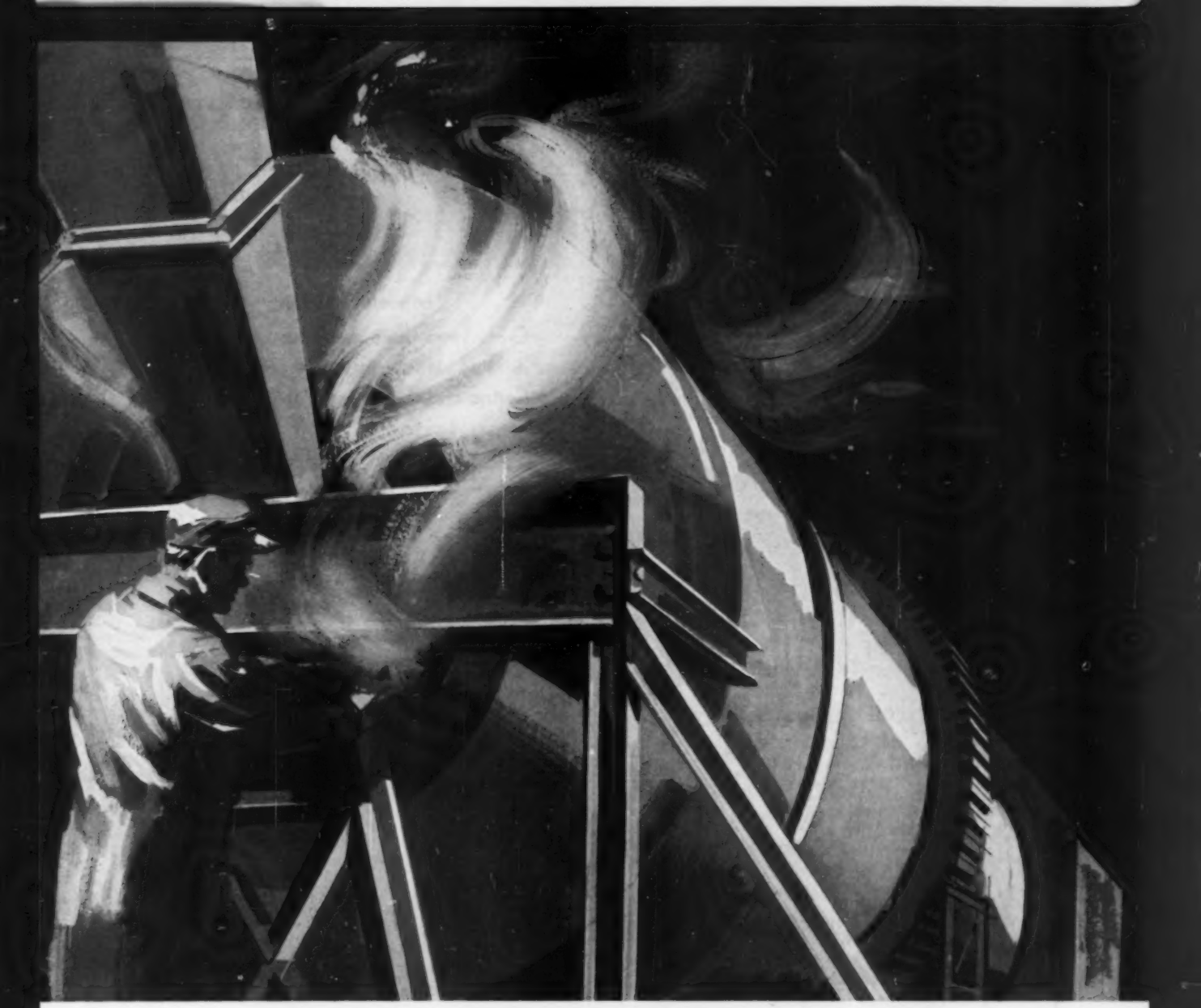
Sociedade Tecnica, Industrial e Comercial Dorr-Oliver (Brasil) Ltda., is the name of the new subsidiary corporation of Dorr-Oliver, Inc., Stamford, Conn., which was recently formed in Sao Paulo, Brazil. Paul Mourier-Petersen is the managing director. His experience includes several years with the company's associate firm, Dorr-Oliver (India) Ltd., Bombay.


Horton

Link-Belt Co. has appointed Harry M. Horton sales manager for their Philadelphia plant. He has been with the company since 1948 and has held sales positions in Indianapolis, Ind., and at Summit, N.J. Alfred B. Schachte, Jr., has been named assistant sales manager.

International Paper Co. has increased the bases price on its multiwall bags and bag papers. They report these will only partially restore the price reductions which the company had made earier in the year.

H. J. Baker & Bro., Inc., is now the exclusive distributor in the United States for Brockville Chemicals, Ltd., of Maitland, Ontario. It will distribute the company's "Bull's Eye" brand of products by truck, railroad tank car, and via the St. Lawrence Seaway. The exclusive distributor in Canada is H. J. Baker & Bro., Ltd., of Montreal.



Texaco can help you stop loss of fertilizer raw materials

Many people in management believe that nitrogen loss in ammoniation, over-analysis, bag breakage, loading and unloading, amounts to only 4 or 5%.

Actually, only the best-run plants have such low losses. More typically, they may approach 15%.

These are findings by Texaco technical experts who help tighten procedures in fertilizer plants as part of the over-all Texaco "Stop Loss" program. For instance, nitrogen losses – including losses of ammonia, N_2 and oxides of nitrogen – are found to be a prime problem in making mixed fertilizer. Our people can advise on proper methods of mixing to avoid losses during ammoniation . . . on plant processes such as crushing, screening, drying, cooling. You can also tap our experts' knowledge of transportation and unloading equipment, storage and handling.

Would you like to have a Texaco man visit you for a look at your possible losses? The service is free. Write to Texaco Inc., *Petrochemical Sales Division,* 135 East 42nd Street, New York 17, N. Y., or 332 South Michigan Avenue, Chicago, Illinois. FC-41

Tune In: Huntley-Brinkley Report, Monday Through Friday—NBC-TV

TEXACO
PETROCHEMICALS

AQUA AMMONIA, ANHYDROUS AMMONIA, NITROGEN SOLUTIONS, DIISOBUTYLENE, CUMENE, BENZENE, TOLUENE, ODORLESS MINERAL SPIRITS, NAPHTHENIC ACID, PROPYLENE TETRAMER AND RUST INHIBITORS.

READER SERVICE

FREE INFORMATION to help you solve fertilizer, pesticide problems

Chemicals

ABC's FOR YOU

The ABC's of dry formulation of pesticides and fertilizers mean: A—absorbency (sufficient for 20% products); B—breakdown (toxicant release as required); and C—(compatibility, coverage, and coating). Creek-O-Nite clay, which meets these basic specifications, is mined and processed by Star Enterprises, Inc. For added information, samples, and prices, just

CIRCLE 211 ON SERVICE CARD

SMALL WONDER

This compact urea prill is uniform in size, economical to use, free-flowing, and is probably the world's most efficient source of solid nitrogen. Produced by Cobalez of Belgium, it is distributed in the U. S. by H. J. Baker & Bro., Inc. Increase your profits by using these concentrated prills. For further information, just

CIRCLE 212 ON SERVICE CARD

PANASOLS

Dependability describes these solvents for agricultural pesticide applications. Panasol RX-4 is a Xylene type solvent, having a low phytotoxicity. Panasol AN-2K has high solvency at low cost; it has a high flash—200°F. Panasol AN-2 is a high solvency naphtha type, nonstaining, and has low temperature stability. The bulletin from Amoco Chemicals Corp. gives more information. It may be obtained by

CIRCLING 213 ON SERVICE CARD

FILLER FILLS NEED

Celite diatomite, a versatile filler for insecticide formulations, can absorb up to twice its own weight of liquid. It prevents the caking of any toxicant, assuring an even flow. With only 9 pounds to a cubic foot, there is less weight added to formulations. Johns-Manville has the details for you if you just

CIRCLE 214 ON SERVICE CARD

FTE USED IN 40 STATES

FTE (fritted trace elements) is ground almost as fine as talcum powder. It is slow-soluble, so it is safe to use on all crops, anywhere. FTE releases nutrients as needed all through the growing season. As little as 1% mixed into good fertilizers will make them more productive and more predictable. Ferro Corp., Agricultural Division, handles FTE. Find out more about how to use this product by

CIRCLING 215 ON SERVICE CARD

Process Equipment

SPECTROSCOPY BIBLIOGRAPHY

A pocket-size, 36-page booklet on ultraviolet, visible, and near-infrared spectroscopy has just been published by Scientific and Process Instruments Division of Beckman Instruments, Inc. The booklet is divided into three sections—General, Technique, and Application. The Application section includes list of published material relating to the use of flame spectrophotometers and other instruments in the agricultural chemicals and related fields. Get your copy by

CIRCLING 216 ON SERVICE CARD

EVAPORATORS

A new catalog from the Buflovak Equipment Division, Blaw-Knox Co., lists their comprehensive line of evaporators and crystallizers. Characteristics, suitability for various liquids and end products, and operation are described and illustrated. Also featured in the catalog are package systems for evaporating and drying chemical solutions to flaky or granular products. To get your copy of this informative booklet, just

CIRCLE 217 ON SERVICE CARD

BALL FLOW INDICATOR

Schutte and Koerting Co. reports the use of a relatively simple and inexpensive ball flow indicator will greatly increase efficiency of barometric counter-current condensers. These condensers are used where the supply of water is limited. The indicators aid in the proper setting of water control valves to control water input. To get more information about this and other indicators, just

CIRCLE 218 ON SERVICE CARD

MONARCH SPRAYS

Monarch Mfg. Works, Inc.'s catalog covers Monarch stoneware chamber sprays, used by many chamber spray sulfuric acid plants. The Fig. 645 nozzle is used for scrubbing acid phosphate gases. Made for full or hollow cone in brass and "Everdur." Get your copy of catalog I by

CIRCLING 219 ON SERVICE CARD

Materials Handling

FORK LIFT TRUCKS

You can increase the tonnage handled each shift if you use the new 3000- and 4000-pound capacity model ERS electric fork lift trucks manufactured by Automatic Transportation Co., Division of The Yale & Towne Manufacturing Co. This compact truck is the only one in its class that will accommodate a standard 18-cell, 21-plate battery without increasing the size of the truck. It features high speed with safety, unitized frame, easy accessibility for servicing, increased visibility, and Automatic's exclusive Current Miser Control system. The ERS can negotiate a ramp in excess of 15% fully loaded, and is highly maneuverable. To get more information, just

CIRCLE 220 ON SERVICE CARD

TANK SCALES

Howe Scale Co. brings specifications for tank scales up-to-date in its newly revised brochure. Information on other indicating and recording devices which may be combined with the scales to broaden the range of their use in weighing and weight recording has been added. The use of ball bearings is just one feature of the scales, which are accurate to plus or minus .1%, and are capable of weighing every shape or size tank from 500 pounds to 200 tons. To get your brochure, just

CIRCLE 221 ON SERVICE CARD

AUTOMATIC REJECTOR

A compact, automatic underweight rejector, model UWR-1 has been developed by Illumitronic Systems Corp. It handles closed packages up to 7 pounds at the rate of 300 packages per minute. It can detect missing components within package limits, and will reject underfills. To get your free literature about this and other weighing-in-motion equipment, simply

CIRCLE 222 ON SERVICE CARD

Miscellaneous

MICROANALYZER

A new pamphlet providing data and specifications on their electron probe microanalyzer has recently been published by Norelco Instruments, a division of Philips Electronics and Pharmaceutical Industries Corp. It explains how the instrument works in direct chemical analysis of samples of less than one micron in area and depth. Drawings show how it makes use of electrons, X-rays, and light to solve micro-chemical analytical problems. A floor plan layout for the installation of the instrument is also included. Get your free copy by

CIRCLING 223 ON SERVICE CARD

NEW FACE SHIELD

General Scientific Equipment Company has just introduced a new protective shield which fits all safety helmets. It permits unrestricted visibility and audibility. Because it protects the eyes, face, and under the chin area, the shield is perticularly adapted to operations where splashing is a problem. It is lightweight, comfortable, in 16-inch x 9-inch size, with a .040-inch visor thickness for impact resistance. Other sizes can be made for special applications. Complete information will be sent to you if you

CIRCLE 224 ON SERVICE CARD

See page 42 for information on these Reader Service Numbers:

225—The New-Matic PF-7 226—Fungicides Made Easy

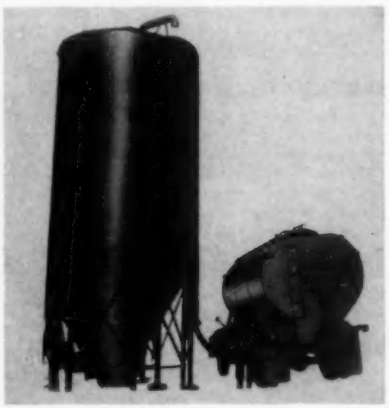
227—One-Man Mixing Plant

To use Reader Service Cards on pages 10 and 36: Circle number of literature you want. Print your name, position, company and address. Clip and mail.

NEW & NOTEWORTHY

THE NEW-MATIC PF-7

Pictured is a new bulk feed truck body which transports bulk feed and unloads it by air pressure to heights up to 100 feet. This pneumatic body is fully pressurized, and the material is



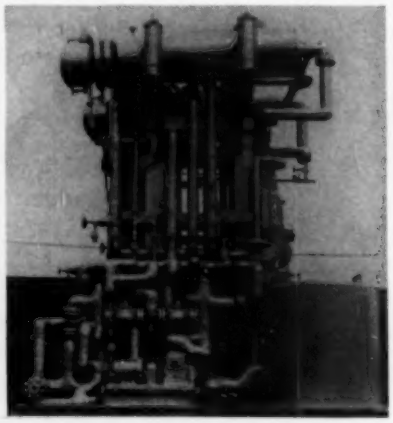
forced by a powerful Miehle-Dexter blower through the delivery hose, discharging at the rate of 800 to 1000 pounds per minute. Because the jet stream delivery is steady and uniform, clogging or blocking of the hose during discharge is prevented. The blower is operated from power take-off on the truck.

Tom Goodrich, of Baughman Mfg. Co., Inc., 111 Shipman Rd., Jerseyville, Ill., will be delighted to send you complete information including detailed specifications. Or just

CIRCLE 225 ON SERVICE CARD

FUNGICIDES MADE EASY

Two new compact units are now available which make the production of hydrogen sulfide gas easy and inexpensive. The smaller of the two units produces up to 2000 pounds per day and the larger 10,000 pounds per day. The design of the units is based on a new process which utilizes the reaction of hydrogen with liquid sulfur at elevated temperatures to produce hydrogen sulfide gas. The new units are manufactured and shipped partially assembled on skids.



You'll want to know more about these money-saving, money-making assemblies. Just write Angus Taylor, Chemical and Industrial Corp., 256 McCullough St., Cincinnati, Ohio. Or just

CIRCLE 226 ON SERVICE CARD

ONE-MAN MIXING PLANT

Consumers Cooperative Association in Kansas City, Mo., operates a dozen bulk fertilizer plants throughout the Midwest. Each plant mixes fertilizer—from a ton to a truck load—to the farmer's specifications while he waits.

I saw this operation take place and the entire job is done by one man operating a very unusual machine. The

machine is called the Payloader, and because of hydraulic bucket control, the operator can easily take separate ingredients from their bins and weigh each one into a 1-ton hopper.

By means of air-control valves and push buttons grouped within his reach, he dumps the hopper, elevates the batch to the mixer, starts the mixer and dumps the fertilizer through a chute into the waiting truck.

Here is automation designed to increase profits. I hope you will ask for details on this unusual piece of equipment that can save you a great deal of money by writing Bob Connelly, The Frank G. Hough Co., 704 Sunnyside Ave., Libertyville, Ill., or

CIRCLE 227 ON SERVICE CARD

The "Pesticide Problem"

No matter how you look at it, the so-called "pesticide problem" is a *marketing problem.* In a series of articles on *how the industry can improve its image,* FARM CHEMICALS is attempting to get to the roots of this problem which is creating so much ill will for the industry. Invariably, we always come back to our original premise:

The scare stories in the press . . . misuse of farm chemicals . . . price cutting . . . and all the other ills stem from too much emphasis on *volume* and not enough attention to teaching the ultimate consumer how to effectively apply these chemicals.

FARM CHEMICALS surveyed almost 500 pesticide formulators (See "The 1961 Pesticide Season," October issue) and we've come up with what we feel are the primary problems causing all our ills. Happily, we think we also have some solutions.

"Too many distributors and dealers are order takers, representing as many as 20 to 30 manufacturers. They obviously do not conscientiously concern themselves with the best interests of any one manufacturer.

"As a result, when a new chemical takes hold, the old, and oftentimes *still effective,* chemicals are abandoned in the 'gold rush'.

"The manufacturer, in turn, has developed the practice of opening up as many outlets as possible to fully capitalize on the sales opportunity before his 'new chemical' is left behind in the next stampede."

What's the answer?

Our reader feels that a more selective *marketing approach* could bring more stability to the farm chemicals sales program.

"The grower, in turn, could well benefit—at least he wouldn't be confused by the quick shift in chemicals from one season to the next," he added.

Strict adherence by manufacturers to three-step distribution and support of the companies at distribution and dealer levels who are doing a *professional* job of selling agricultural chemicals are the answers, according to our reader.

This makes good sense to us.

"The price cutting problem stems from attempts to 'buy business' . . . or to lure large-volume accounts with a discount," is the way another reader explained it to FARM CHEMICALS recently.

"The only weapon available to prime producers of a chemical is to refuse delivery to offending customers.

"Few if any producers are willing to axe a pet account; therefore there are no positive solutions to the problem," he added.

One "gripe" which we heard very often in surveying pesticide formulators was "the desire for money over moral and ethical standards." To put it more bluntly, "dog eat dog."

"I don't think anything you can print or say will change the situation," was the pessimistic view of one formulator.

Well, FARM CHEMICALS does not intend to be a Don Quixote, riding in on a white charger. By the same token, we promised our readers that we'd tackle this problem head-on when we started talking about initiating our marketing emphasis, late in 1958. We were told bluntly at that time, "Stay off the price cutting problem. You'll never solve it; you'll just make enemies."

An indication of how lightly we took this warning was our publishing of the article, "Creative Pricing" in our very first issue under our new marketing emphasis in January 1959. This analysis of price cutting by Fred C. Hoy, president of Koppers Company, stands unchallenged as the outstanding contribution to the eventual solution of this problem.

One industry leader gave us a two-step program in the formation of more *positive* selling:

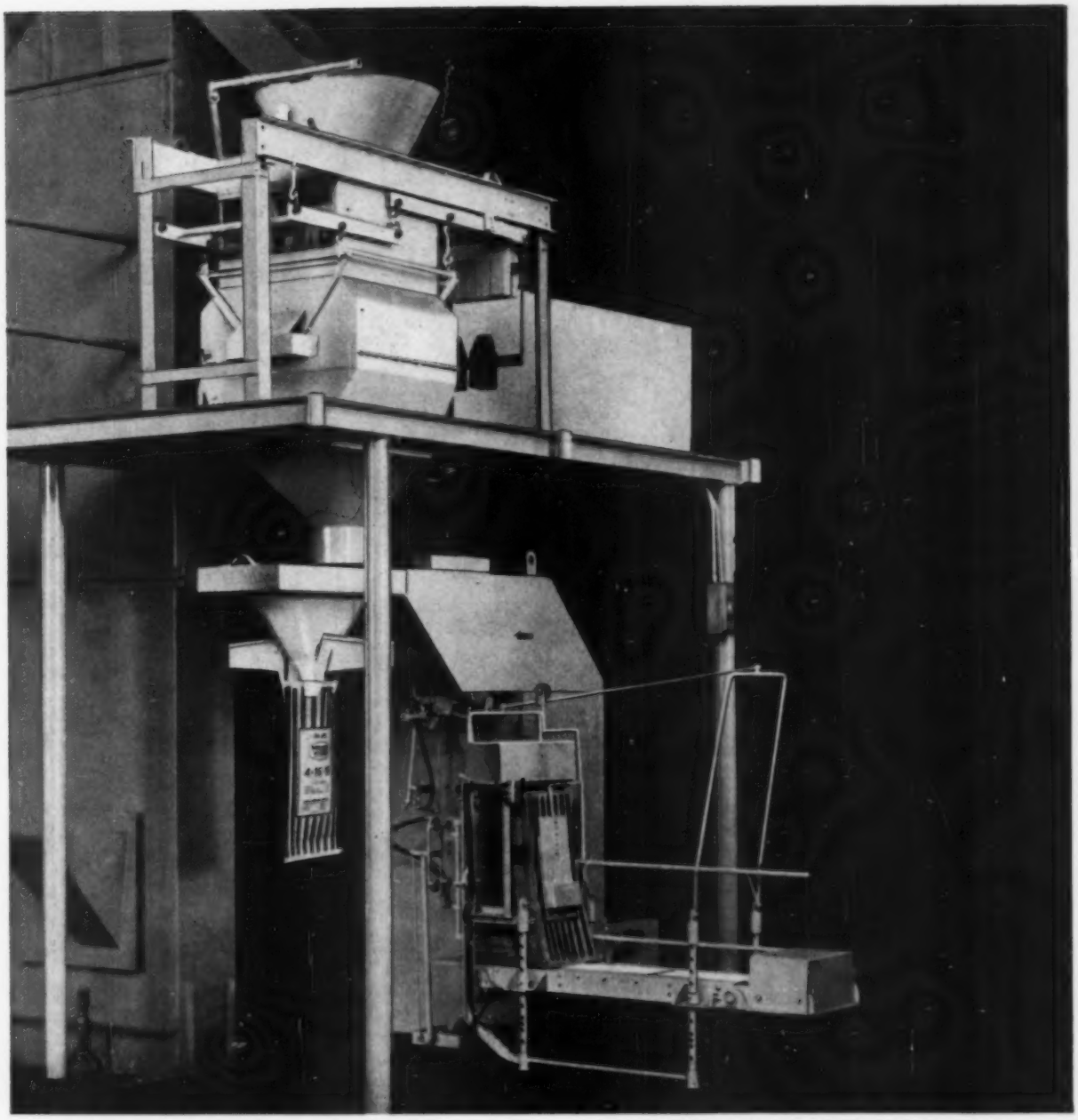
"Phase 1—Sell *products* instead of chemicals. Phase 2—sell *programs* instead of products."

He added that their pesticide sales had improved this past season in spite of all the ills we've described. Why? Because of a firm *marketing policy* which places strong emphasis on trained field personnel to explain and demonstrate the effective, safe use of the many new chemicals being introduced to farmers.

With this kind of a program, they don't worry about volume, because volume takes care of itself!

Gordon L. Berg

EDITOR



Automatic bag placing and filling . . . shown here is the Raymond Bag Packer (top half of photo) and the Raymond Bag Placer (bottom)

INDUSTRIALLY PROVEN... *the Raymond Combination*

ROTOMATIC BAG PACKER—BAG PLACER

Here's a proven step towards automating your packing line. The Raymond combination Bag Placer and Bag Packer will automatically hang bags on packing spout and fill them at the rate of 25 bags per minute . . . proven in full production line operation. The development of the Raymond Bag Placer, which is designed to operate with all open mouth packing equipment, is another step forward towards completely automatic bag placing, filling and closing operations. For details on the Raymond Packer Placer combination or separate units, contact your nearest Raymond Representative or write

Raymond
BAG CORPORATION
Middletown, Ohio
A Division of Albemarle Paper Mfg. Co.

ATLANTA • BALTIMORE • CHICAGO • KANSAS CITY • LOUISVILLE • NEW YORK